BOROVIK-ROMANOVA, T.F.

Mutual influence of alkaline elements during their determination by a flame photometer. Report No.2. Zhur. anal. khim. 20 no.6: 655-658 '65. (MIRA 18:7)

1. Institut geokhimii i analiticheskoy khimii imeni Vernadskogo AN SSSR, Moskva.

KOVAL'SKIY, V.V.; BOBOVIK-ROMANOVA, T.F.; LETUNOVA, S.V.; GINZBURG, Ye.O.

Some data on trace element content in microorganisms.
Mikrobiologiia 34 no.3:403-406 My-Je '65.
(MIRA 18:11)

1. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo AN SSSR, Moskva.

BOROVKA, M.

Underground gasification of Slovak lignites. Prace Ust paliv 6: 107-115 '63.

L 08803-67 EWT(d)/EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD/WW/GD/AT

ACC NR: AT6020457 (N) SOURCE CODE: UR/0000/65/000/000/0248/0266

AUTHOR: Mitin, R. V.; Knyazev, Yu. R.; Petrenko, V. I.; Borovik, Ye. S. 73 71

ORG: none

TITLE: Pulse heating in a high pressure argon arc

SOURCE: AN UkrSSR. Vzaimodeystviye puchkov zaryazhennykh chastits s plazmoy (Interaction of charged particle beams with plasma). Kiev, Naukova dumka, 1965, 248-266

TOPIC TAGS: argon, plasma heating, dense plasma, pulse heating, black body radiation

ABSTRACT: This work describes the study of a dense high-temperature argon plasma heated by a steady current with very high current pulses superimposed for a sufficiently long time to establish thermal and hydrodynamic equilibrium. The experimental system consists of the steady current source, a pulse current source (bank of capacitors) and a discharge chamber. The electrical characteristics of the system are described and the dynamic characteristics are given for several capacitor charges. The argon arc was studied spectroscopically and optically with the following results: 1) the electric field in the plasma column was found to have a constant value in the axial direction. Its value increased slightly with current and pressure increase (1/3 and 1/4 powers, respectively); 2) surface radiance increased linearly with the electric power delivered to 1 cm of the arc and at $3.5 \times 10^6$ W/cm reached a value corresponding

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ACC NR: AT6020457

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to a black body of 12000°K; 3) the charged particle density reached $10^{19}$ in one $cm^3$ and the temperature in the central position of the arc discharge was found to be in the range of 30,000-70,000°K. Orig. art. has: 19 formulas, 9 figures.

SUB CODE: 20/ SUBM DATE: 11Nov65/ ORIG REF: 008/ OTH REF: 005

Card 2/2 nst

L 08773-67 EWT(m)/EWP(w)/EWP(t)/ETI JD

ACC NR: AP6029140 SOURCE CODE: UR/0048/66/030/006/1079/1082

AUTHOR: Borovik, Ye.S. (Deceased); Mamaluy, Yu. A.

42

ORG: none

TITLE: Susceptibility of Ferroxplanes above the Curie point [Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 6, 1966, 1079-1082

TOPIC TAGS: ferrite, paramagnetic susceptibility, temperature dependence, cobalt compound, nickel compound, barium compound, strontium compound

ABSTRACT: The authors have investigated the paramagnetic susceptibility of mixed Ferroxplanes of compositions $Co_yNi_{2-y}\overline{W}(Ba)$ and $Co_yNi_{2-y}\overline{W}(Sr)$, where W(X) stands for $O_2 \cdot XO \cdot (Fe_2O_3)_8$. This work is a continuation of earlier work on the same materials by the authors (Fiz. metallov i metallovedeniye, 16, 2 (1963); 18, 5 (1964)), and the measurement and sample preparation techniques are described in the earlier papers. The temperature dependence of the susceptibility above the Curie point was found to be of the type characteristic of ferrimagnetism. The constants $1/q_0$, C, $\theta$, and s in the Neel equation $1/q = 1/q_0 + T/C - s/(T - \theta)$ for the paramagnetic susceptibility q of a ferrite as a function of the temperature T were derived from the experimental data and are tabulated, together with the corresponding constants for barium, strontium,

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L 08773-67

ACC NR: AP6029140 O

and lead hexaferrites. These constants for the Ferroxplanes do not differ greatly from those for the hexaferrites. The experimental values of the constants C were close to the values calculated from the magnetic moments of the constituent ions. The molecular field coefficients were calculated from the constants of the Neel equation under the assumption that the magnetically active ions are randomly distributed among the tetrahedral and octahedral sites, and these are tabulated for the Ferroxplanes, the three previously mentioned hexaferrites, and a number of cubic monoferrites. The intra-sublattice exchange integrals for the A sublattices of all the hexaferrites were found to be negative; this conflicts with the basic assumption of the Neel theory that the magnetic moments on one sublattice are aligned parallel. The inter-sublattice exchange integral was found to be negative for all the tabulated materials, indicating that the magnetic moments on the two different sublattices are antiparallel. This is in agreement with the Neel theory assumption of uncompensated antiferromagnetism in ferrites. The inter-sublattice exchange integral was found to be much greater (in absolute value) in the cubic ferrites than in the hexaferrites or the Ferroxplanes. Orig. art. has: 2 formulas, 4 figures and 2 tables.

SUB CODE: 20,07 SUBM DATE: 00 ORIG REF: 004 OTH REF: 004

Card 2/2 nst

KORZINKINA, Z.; VATLETSOV, V.; MEYLAKHS, M., master sporta; BOROVIKHIN, D.

Facts, events, people. Kryl. rod. 16 no.9:18-19 S '65.
(MIRA 18:12)

1. Obshchestvennyy instruktor Kirovskogo oblastnogo komiteta Vsesoyuznogo dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu SSSR (for Vatletsov). 2. Zamestitel' nachal'nika TSentral'nogo doma aviatsii i kosmonatiki (for Borovikhin).

BOROVIK-ROMANOV, A.S.; TULIN, V.A.

Mixed electron-nuclear resonance in the antiferromagnet $MnCO_3$. Pis'. v red. Zhur. eksper. i teor. fiz. 1 no.5:18-22 Je '65. (MIRA 18:11)

1. Institut fizicheskikh problem imeni Vavilova AN SSSR.
Submitted April 22, 1965.

BOROVIKOV, A.

USSR/Corrosion - Protection from Corrosion, J

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63863

Author: Borovikov, A., Popov, S.

Institution: None

Title: Detection of Intercrystallite Corrosion by the Paint Method

Original Periodical: Grazhd. aviataiya, 1956, No 3, 29

Abstract: The method involved for detecting foci of intercrystallite corrosion on articles made from Al-alloys by means of paints, consists of coating the metal surface first with a layer of red paint made from 10-30 g of the aniline dye "Sudan IV," 20-30% gasoline and 70-80% illumination kerosene, and then with a white paint consisting of a mixture of 70% white nitroenamel "DM," 20% "RDV" thinner and 10% Zn white. Presence of foci of intercrystallite corrosion is evidenced by the appearance of clearly defined red paint marks on the white background. It was found that the paint method makes it possible to detect intercrystallite disintegration having a depth of $\geq$ 0.1 mm.

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SOV/84-58-8-33/59

AUTHORS: Anoreva, Ye., Borovikov, A., Valyushko, A., Engineers

TITLE: A Luminescent Defectoscope (Lyuminestsentnyy defektoskop)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 8, p 24 (USSR)

ABSTRACT: The article describes, in general terms, an installation for detecting defects in aircraft parts by using the luminescence of a mixture of kerosene and aircraft motor oil in ultraviolet light. The installation, designated LDA-1, was built by an unidentified repair establishment of the Aeroflot and is intended for lot production during this year. The set up consists of four separate cabinets. In the first cabinet the part is soaked with the fluorescent liquid, in the second it is washed and dried, in the third dusted with magnesium oxide. The fourth cabinet contains an ultraviolet lamp for inspecting a part for defects. The article is accompanied by five photographs showing the general view of the installation and the interiors of individual cabinets.

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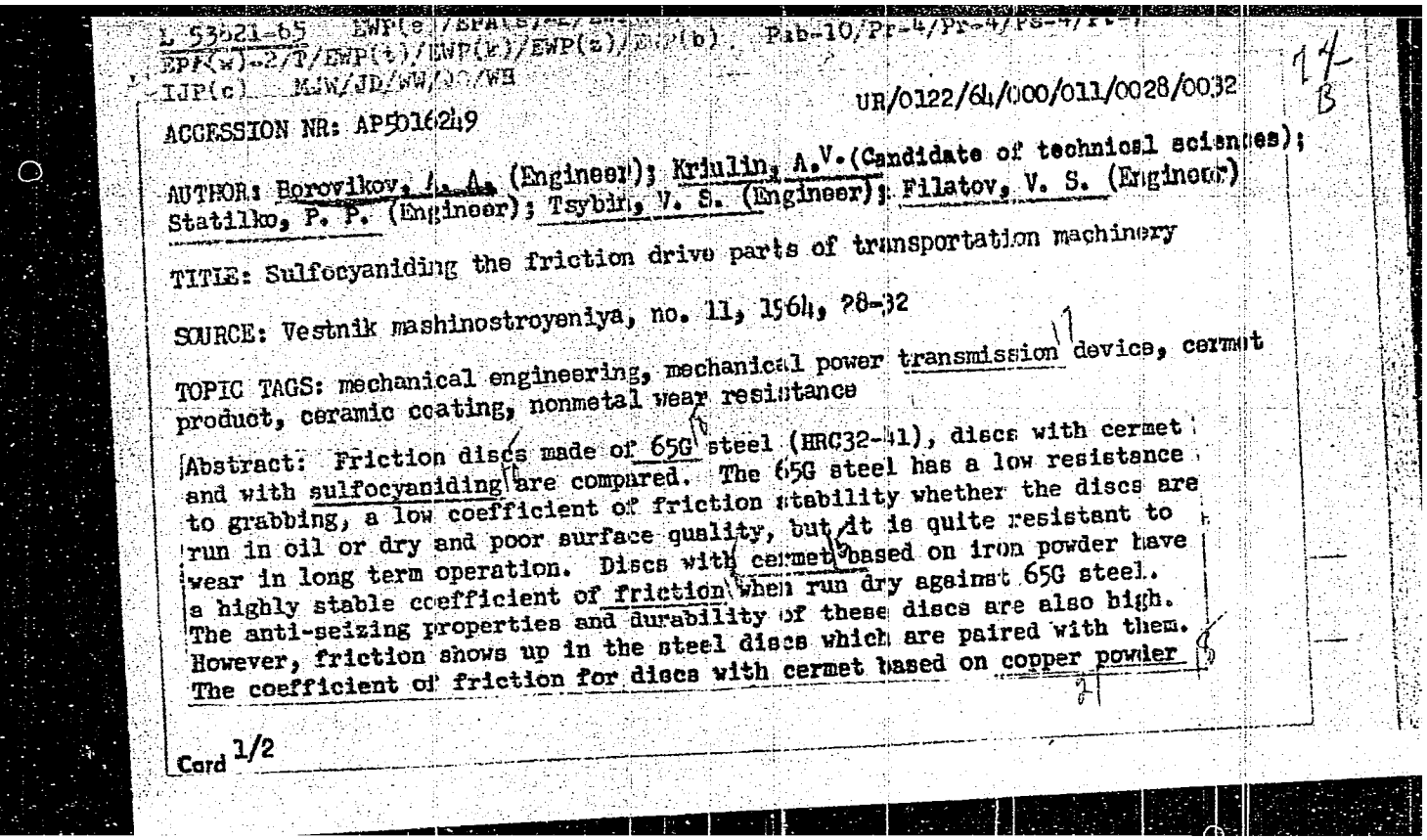

L 53621-65 EWP(e)/EPA(s)-2/EWT(m)/EWP(b) Pab-10/Pr-4/Pr-4/PS-4/P
EPF(w)-2/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)
IJP(c) MJW/JD/WW/JG/WH

ACCESSION NR: AP5016249 UR/0122/64/000/011/0028/0032

AUTHOR: Borovikov, I. A. (Engineer); Krilulin, A.V. (Candidate of technical sciences); Statilko, P. P. (Engineer); Tsybin, V. S. (Engineer); Filatov, V. S. (Engineer)

TITLE: Sulfocyaniding the friction drive parts of transportation machinery

SOURCE: Vestnik mashinostroyeniya, no. 11, 1964, 28-32

TOPIC TAGS: mechanical engineering, mechanical power transmission device, cermet product, ceramic coating, nonmetal wear resistance

Abstract: Friction discs made of 65G steel (HRC32-41), discs with cermet and with sulfocyaniding are compared. The 65G steel has a low resistance to grabbing, a low coefficient of friction stability whether the discs are run in oil or dry and poor surface quality, but it is quite resistant to wear in long term operation. Discs with cermet based on iron powder have a highly stable coefficient of friction when run dry against 65G steel. The anti-seizing properties and durability of these discs are also high. However, friction shows up in the steel discs which are paired with them. The coefficient of friction for discs with cermet based on copper powder

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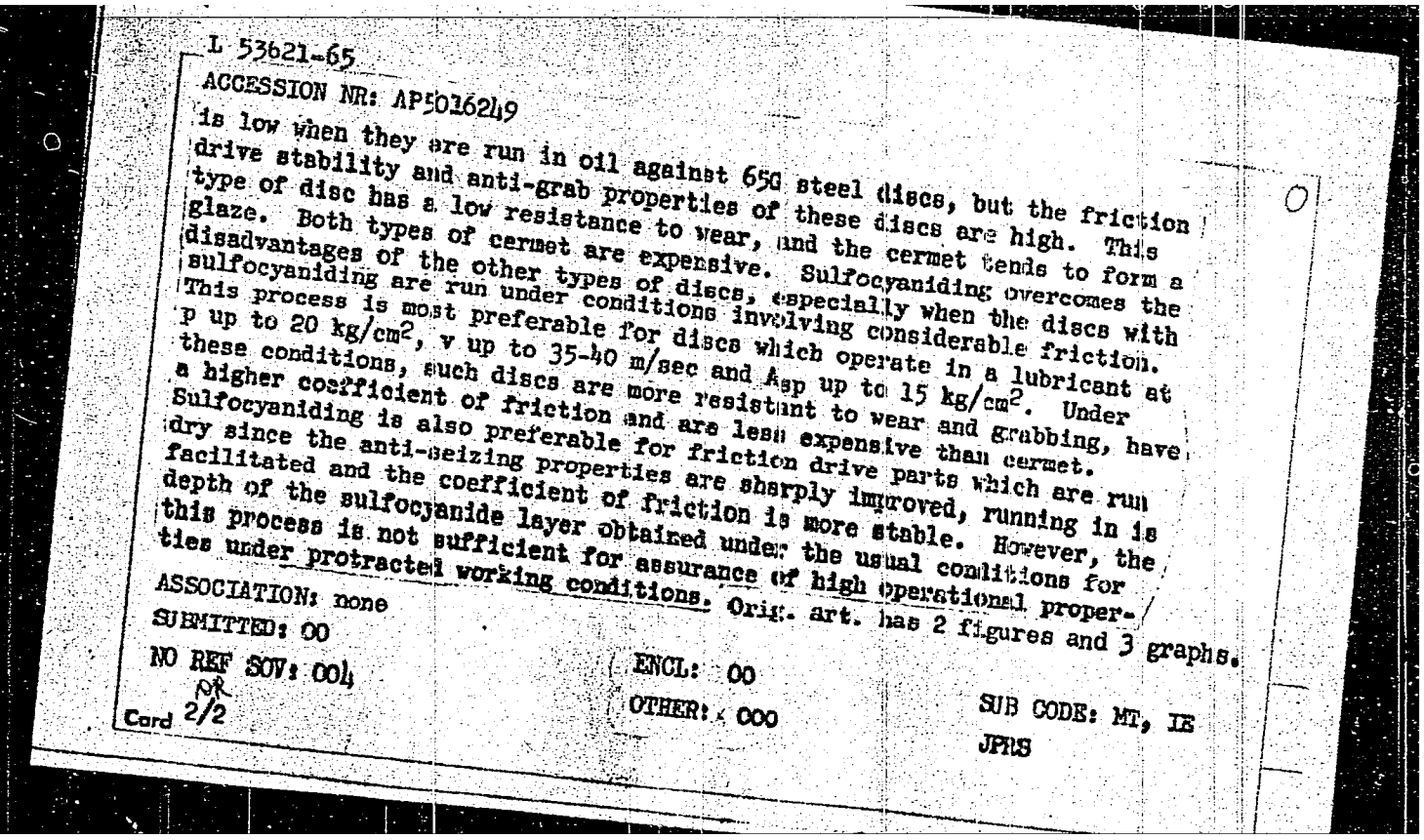

L 53621-65

ACCESSION NR: AP5016249

is low when they are run in oil against 65G steel discs, but the friction drive stability and anti-grab properties of these discs are high. This type of disc has a low resistance to wear, and the cermet tends to form a glaze. Both types of cermet are expensive. Sulfocyaniding overcomes the disadvantages of the other types of discs, especially when the discs with sulfocyaniding are run under conditions involving considerable friction. This process is most preferable for discs which operate in a lubricant at p up to 20 kg/cm$^2$, v up to 35-40 m/sec and Asp up to 15 kg/cm$^2$. Under these conditions, such discs are more resistant to wear and grabbing, have a higher coefficient of friction and are less expensive than cermet. Sulfocyaniding is also preferable for friction drive parts which are run dry since the anti-seizing properties are sharply improved, running in is facilitated and the coefficient of friction is more stable. However, the depth of the sulfocyanide layer obtained under the usual conditions for this process is not sufficient for assurance of high operational properties under protracted working conditions. Orig. art. has 2 figures and 3 graphs.

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 004

ENCL: 00

OTHER: 000

SUB CODE: MT, IE

JPRS

Card 2/2

IDATT, M.P. [Idatte, M.P.]; ROT, E. [Roth, Ernst]; TOROPOVA, V.S. [translator]; PLUMGYAN, A.M. [translator]; NAUMOV, V.P. [translator]; BOROVIKOV, A.F., red.; KHOMYAKOV, A.D., tekhn.red.

[Antiaircraft fire; effectiveness of antiaircraft fire] Voprosy zenitnoi strel'by: Effektivnost' zenitnoi strel'by [by M.P.Idatte; translated from the French]. [Computing the trajectories of guided missiles] K raschetu traektorii reaktivnykh snariadov, upravliaemykh po luchu [by Ernst Roth; translated from the German]. Moskva, Izd-vo inostr.lit-ry, 1959. 203 p. (MIRA 13:7)
(Antiaircraft guns) (Guided missiles)

Borovikov, A. F.

BOROVIKOV, A. F.

Vooruzhenie sovremennykh samoletov. (Tekhnika vozdushnogo flota, 1940, no.9, p. 85-95, illus., diagrs.)
Title tr.: Modern aircraft armament.

TL504.T4 1940

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

BOROVIKOV, A. I.

"A High-Speed Remote Control System, Type BSK-54," pp 67-75, ill

Abst: A description is given of the BSK-54 apparatus (high-speed, variable code, 1954 model), designed for two-way transmission on one communication channel. This system may be used for the telecontrol of any two-position objects and for remote signaling of the position of these objects. The advantages of the BSK-54 system and its possible use for telemechanization of power systems are noted.

SOURCE: Materialy Nauchno-Tekhnicheskoy Konferentsii po Obmenu Opytom Ekspluatatsii Ustroystv Telemekhaniki i Svyazi Nauchn-Tekhn. O-va Energet. Prom-sti. (Material From the Scientific and Technical Conference on Exchange of Experience in the Operation of Telemechanics and Communications Devices of the Scientific and Technical Society of the Power Engineering Industry), Rostov, 1957.

Sum 1854

BOROVIKOV, A.I., inzhener.

Selenium rectifier for feeding remote control devices. Elek.sta. 25 no.5:57-58 My '54. (MLRA 7:6)
(Electric current rectifiers) (Remote control)

BOROVIKOV, A.I., inzhener.

Automatic switching-in of the reserve power supply in telemechanical systems. Elek.sta. 28 no.1:88-89 Ja '57. (MLRA 10:3)
(Automatic control)

S/104/60/000/009/003/005
E073/E335

AUTHOR: Borovikov, A.I., Engineer

TITLE: Equipment for Reserve Supply of AC Current from Storage Batteries

PERIODICAL: Elektricheskiye stantsii, 1960, No. 9, pp. 59 - 61

TEXT: Rotary motor generators driven by storage batteries do not yield a current of a sufficiently constant voltage and frequency. At Rostovenergo Works special equipment has been developed to ensure reliable emergency power of a constant frequency and voltage. It consists of the following main elements: 1) a low-power generator of harmonic oscillations made up of crystal triodes with resistance capacitance filters and tuned to 50 cps; 2) mercury thyratrons, type TPI-5/2 (TRI-5/2), with invertor apparatus for DC to AC conversion; 3) four relays which ensure automatic starting of the equipment and a power contactor. The storage batteries feed a frequency generator through a voltage divider and a current stabiliser; this frequency generator produces a voltage of about 25 V with a frequency

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Equipment for Reserve Supply of AC Current from Storage Batteries

of 50 c.p.s. This voltage in series with a shift voltage (from a condenser) is fed to the grids of the thyratrons. The cathodes of the thyratrons are heated but the anode voltage is not switched on normally. Thus, the circuit is continuously in a state of readiness although the communication and telemechanics apparatus is fed from the general supply network. If the supply voltage fails or drops below a certain level, the system is automatically switched over to operate from the storage batteries. The frequency produced by an RC generator is practically independent of the voltage of the storage battery and for voltage fluctuations of $\pm$ 20% of the storage batteries the voltage fluctuation at the output from the stabiliers is $\pm$ 1% and the frequency deviation is $\pm$ 0.05 cps. This system of reserve current supply ensures normal operation of the telemechanics and the communication system. The changeover from normal supply to emergency supply is effected practically without interruption. The equipment is simple, it has no revolving parts and requires

S/104/60/000/009/003/005
E073/E335

Equipment for Reserve Supply of AC Current from Storage Batteries

hardly any maintenance. The floor space required is 750 x 500 mm and the equipment weighs 15 to 20 times less than rotary machinery. The disadvantages are that: 1) the heating filaments of the thyratrons have to be continuously switched on and irrespective of whether they are or are not in operation they have to be replaced once a year; 2) the current generation of the thyratrons may cease if there is an excessive drop in the voltage of the storage batteries.
There is 1 figure.

Card 3/3

BOROVIKOV, A.I., inzh.

Modified system of remote control and signaling. Elek.sta. 32 no.9:91 S '61. (MIRA 14:10)
(Remote control)

S/129/61/000/009/005/006
E073/E335

AUTHORS: Pustynnikov, V.G. and Borovikov, A.I.

TITLE: Automatic Monitoring of the Temperature During High-frequency Heating of Components to be Quenched

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No. 9, pp. 56 - 59

TEXT: A new principle is applied, based on utilising the sudden change in permeability and electric conductivity which occurs in the neighbourhood of the Curie point. For most steels the Curie point is between 760 and 780 °C and does not depend on the heating speed, voltage and frequency of the power supply, the configuration of the quenched component and the method of heating. At the beginning of the heating process, the entire component is at a low temperature and, consequently, a relatively large current flows through the primary circuit of the transformer. As the temperature is increased, the Curie point is gradually reached at various spots of the component; this results in a reduction of the current intensity in the primary of the transformer. When the entire component has

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Automatic Monitoring of ....

reached the critical temperature, the current in the primary circuits stabilises at a minimum value, which corresponds to the no-load value. Fig. 3 shows an oscillogram of the changes in the current during the process of heating of a part using a transformer in which the primary current reaches 250 A in the case of an oscillator with 500 V, 10 000 c.p.s. The current stabilises to about 150 A at the end of the process, the no-load current being 110 - 120 A. The beginning of the decrease in the current (point a) corresponds to the beginning of the magnetic transformations, whilst the end of the decrease (point 6) indicates that all the points in the heated crust have reached the Curie-point temperature (750 °C). It is most convenient to follow the change in the current intensity by using the first derivative di/dt, which is zero beyond the point 6. A control pulse for automatic control of the process of heating can be obtained by means of a circuit arrangement, shown in Fig. 4, consisting of the following blocks: 1 - KA-11 machine for automatic feeding-in of the components to the inductor and ejection into the oil baths after heating; 2 - input

Automatic Monitoring of ....

block into which a high-frequency current, varying with time as the heating of the component progresses, is fed by means of a current-transformer. The alternating current is transformed into proportional DC voltage values so that at the output of this block a DC voltage is obtained $U(t) = K i(t)$, where K is the proportionality coefficient; 3 - differentiating block, generating a signal $dU/dt = Kdi/dt$, which is proportional to the derivative of the current; 4- amplifier, at the output end of which a relay II is fitted. This relay operates at the point a of the oscillogram and releases at the point b; 5 - block containing the electric automation circuit. which controls the technological process. The control pulse, fed by this block, is coordinated by the block 6 - which controls the dosage of time, feedback and blocking. For quenching, a heating temperature of 900 - 10 °C is required, so that the component has to be heated a little longer after reaching the Curie point and it is for this purpose that the time dosage is applied. If the desired heating temperature (900 °C) is taken as 100%, monitoring of the temperature on the basis of the Curie point enables determining 89-90% of the desired temperature. The final

Automatic Monitoring of ....

temperature rise is controlled by time dosage for a permissible error in this dosage time of 20-30%; the resulting error in the final temperature will be 2-3%. The here described equipment was developed to be used in conjunction with the automatic quenching machine KA-11. It consists of two parts, one for generating the command pulse, the other for final heating of the component from the Curie point to the quenching temperature.
There are 6 figures.

ASSOCIATION: Rostovskiy institut sel'khozmashinostroyeniya
(Rostov Institute for Agricultural Machinery)

BOROVIKOV, Aleksandr Ivanovich, dotsent; PUSTYNNIKOV, Vasiliy Grigor'yevich, kand. tekhn. nauk, dotsent

Inertialess phase-sensitive voltmeter. Izv. vys. ucheb. zav.; elektromekh. 7 no.9:1157-1160 '64 (MIRA 18:1)

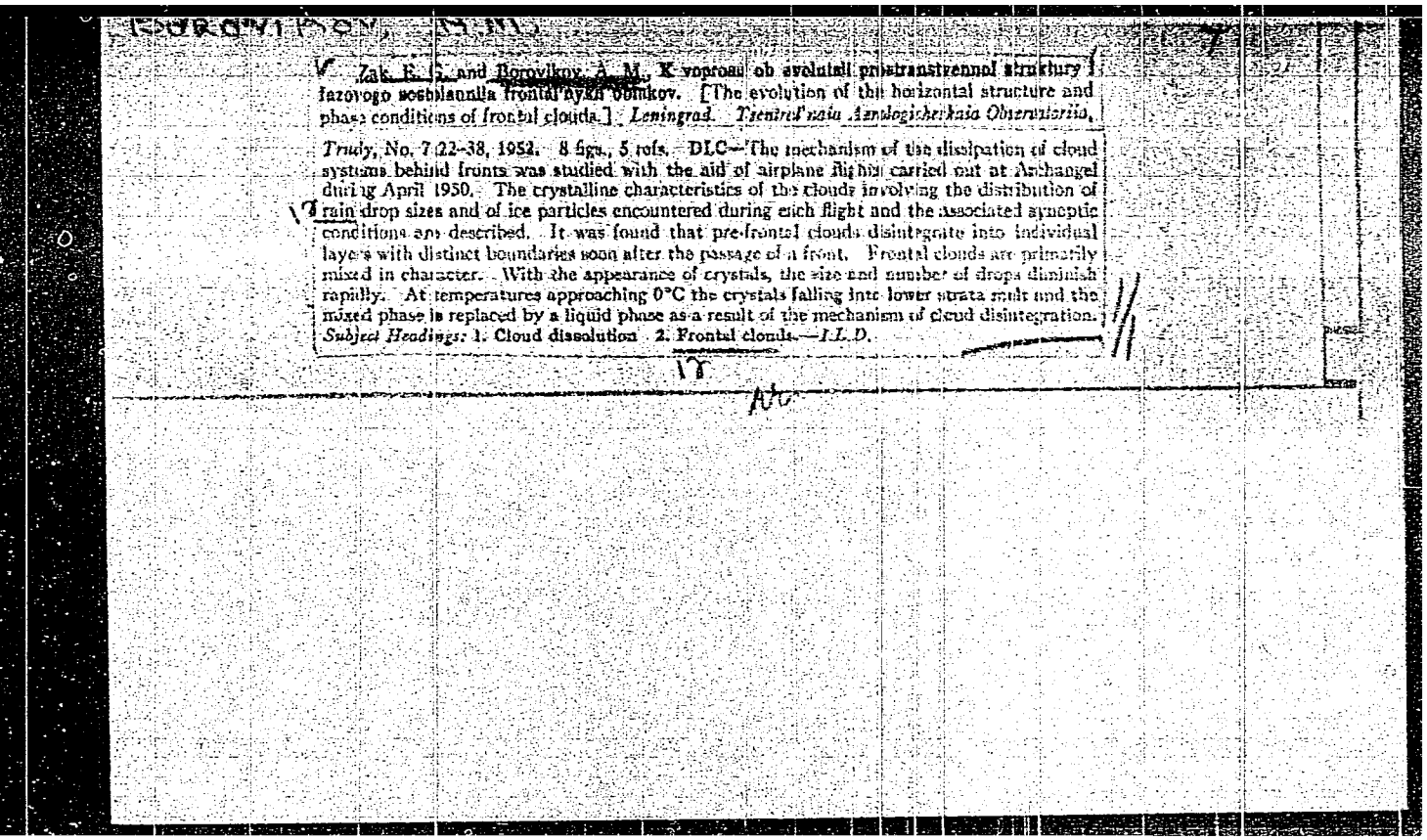
1. Kafedra avtomatizatsii proizvodstvennykh protsessov Rostovskogo instituta sel'skokhozyaystvennogo mashinostroyeniya (for Borovikov). 2. Zaveduyushchiy kafedroy elektrotekhniki Rostovskogo instituta sel'skokhozyaystvennogo mashinostroyeniya (for Pustynnikov).

1. BOROVIKOV, A. M.

2. USSR (600)

"Some Results of the Study of Closed Elements." Trudy TSAO, Issue 3, 1948 (3-64)

9. Meteorologiya i Gidrologiya, No. 3, 1949. [redacted] Report U-2551. 30 Oct 52.



Zak, E. L., and Borovikov, A. M., K voprosu ob evolutsii prostranstvennoi struktury i fazovogo sostoianiia frontal'nykh oblakov. [The evolution of the horizontal structure and phase conditions of frontal clouds.] *Leningrad. Tsentral'naia Aerologicheskaia Observatoriia, Trudy*, No. 7 22-38, 1952. 8 figs., 5 refs. DLC—The mechanism of the dissipation of cloud systems behind fronts was studied with the aid of airplane flights carried out at Arkhangel during April 1950. The crystalline characteristics of the clouds involving the distribution of rain drop sizes and of ice particles encountered during each flight and the associated synoptic conditions are described. It was found that pre-frontal clouds disintegrate into individual layers with distinct boundaries soon after the passage of a front. Frontal clouds are primarily mixed in character. With the appearance of crystals, the size and number of drops diminish rapidly. At temperatures approaching 0°C the crystals falling into lower strata melt and the mixed phase is replaced by a liquid phase as a result of the mechanism of cloud disintegration. *Subject Headings:* 1. Cloud dissolution 2. Frontal clouds.—*I.L.D.*

BOROVIKOV, A. M.

Certain Results of Investigations of Crystalline Clouds

Results of observations from an airplane in 1950-1952 on ice crystals of clouds. The author describes procedure for collecting the crystals. There exist three principal forms of crystals: laminar, acicular, and volumetric (equiaxial). He presents photographs of types. Thin sheets are observed at temperatures 0-16°; acicular from -10° to -30°. The author considers that the laminar forms are formed in the atmosphere at temperatures from 0 to-20°, the columnar ones from -13 to - 30° and lower, and the equiaxial bulky forms, having the shape of six-sided pyramid, at -22 to -27°. The dependence of form upon temperature is explained by the differences in the elastic (vapor) tension under ice and under water, which conditions the growth of the crystal. (RZhGeol, No. 5, 1955)
Tr. Tsentr. aerolog. observ., No. 10, 1953, 31-47

SO: Sum. No. 744, 8 Dec 55 - Supplementary Survey of Soviet Scientific Abstracts (17)

BOROVIKOV, A.M.

SIMONOV, Ye.D., redaktor; ROTOTAYEV, P.S., redaktor; BOROVIKOV, A.M., redaktor; BULGAKOV, N.V., redaktor; GARF, B.A., redaktor; GVOZDETSKIY, N.A., redaktor; YEZERSKIY, Ye.M., redaktor; ZATULOVSKIY, D.M., redaktor; IVANOV, A.I., redaktor; KUZ'MIN, K.K., redaktor; NESTEROV, V.F., redaktor; SUSLOV, A.D., redaktor; TUSHINSKIY, G.K., redaktor; YUKHIN, I.V., redaktor; LEBEDEVA, N.G., redaktor; GOLITSYN, A.V., redaktor; KOSHELEVA, S.M., tekhnicheskiy redaktor

[Conquered peaks; annual publication of Soviet mountaineering for 1953] Pobezhdennye vershiny; ezhegodnik sovetskogo al'pinizma god 1953. Moskva, Gos. izd-vo geograficheskoi lit-ry, 1954. 606 p.
(Mountaineering--Yearbooks) (MLRA 8:7)

KHRGIAN, A.Kh.; BOROVIKOV, A.M.; DZERDZEYEVSKIY, B.L.; DYUBYUK, A.F.; ZVEREV, A.S.; ZOLOTAREV, M.A.; KRICHAK, O.G.; KLIMIN, I.A.; PINUS, N.Z.; SEMLEZNEVA, Ye.S.; YASNOGORODSKAYA, M.M., red.; VLADIMIROV, O.G., tekhn.red.

[Cloud atlas] Atlas oblakov. Leningrad, Gidrometeor.izd-vo, 1957. 45 p. (MIRA 12:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeorologicheskoy sluzhby.
(Clouds)

Borovikov, A. M.

MAZIN, I.P.; BOROVIKOV, A.M., red.; SUBBOTINA, G.B., red.; ZARKH, I.M., tekhn.red.

[Physcal principles in aircraft icing] Fizicheskie osnovy obledeneniia samoletov. Pod red. A.M.Borovikova. Moskva, Gidrometeor. izd-vo (otd-nie), 1957. 119 p. (MIRA 11:2)
(Airplanes--Ice formation)

ANOREVA, Ye., inzh.; BOROVIKOV, A., inzh.; VALYUSHKO, A.inzh.

Luminescent defectoscope. Grazhd. av. 15 no.8:24 Ag '58. (MIRA 11:9)

(Airplanes--Maintenance and repair)

SOV/169-59-6-6238

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 6, p 121 (USSR)

AUTHORS: Borovikov, A.M., Grudzinskiy, M.E., Khrgian, A.Kh.

TITLE: On the Meteorological Conditions of the Alpine Tien Shan

PERIODICAL: Tr. Tsentr. aerol. observ., 1958, Nr 21, pp 176 - 199

ABSTRACT: The authors give data on the mean air temperature in summer of 1956 in the area of the upper part of the Inylchek glacier, on the diurnal course of temperature, humidity, and pressure, on wind conditions, on the recurrence of the various forms of cloudiness and on precipitations of various duration. The synoptic processes and the character of weather during the expedition are briefly described. The observations in the southern Inylchek reveal the considerable cooling caused by the glaciers: A temperature decrease by 3°C is observed in the lower layer of the air near the glacier instead of a temperature increase by 3 - 4°C in comparison to the free atmosphere, typical for the rocky mountain ranges of the Tien Shan. It was found that the synoptic conditions of the mountainous

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SOV/169-59-6-6238

On the Meteorological Conditions of the Alpine Tien Shan

country are also out of the ordinary. The approach of a cold front is accompanied by increased cloudiness, precipitations, intensification of the wind, etc, a great distance ahead of the front line. The cloud system of the cold front in mountains turns often into a wide system of stratified rainy clouds. Bibl. 8 titles.

N.I. Zverev

Card 2/2

BOROVIKOV, A M

PHASE I BOOK EXPLOITATION SOV/5543

Moscow. Tsentral'nyy institut prognozov

Voprosy diagnoza i prognoza nizkoy oblachnosti i obledeneniya samoletov (Problems in the Diagnosis and Forecasting of Low Cloud Formations and Icing On Aircraft) Moscow, Gidrometeoizdat (Otd-niye), 1959. 92 p. (Series: Its: Trudy, vyp. 80)
Errata slip inserted. 800 copies printed.

Sponsoring Agencies: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR; Tsentral'nyy Institut prognozov.

Ed. (Title page): N. V. Petrenko; Ed. (Inside book): M. I. Sorokina; Tech. Ed.: I. M. Zarkh.

PURPOSE: This publication is intended for synoptic meteorologists at aviation meteorological stations and other weather-service organizations. It may also be of interest to theoretical research workers in meteorology.

COVERAGE: The first four articles of this issue of the Transactions of the Central Institute of Weather Forecasting deal with conditions associated with the formation and forecasting of cloudiness in the low cloud level. The results obtained from balloon and aircraft soundings are presented. The conditions of aircraft icing in clouds are analyzed in two articles and the possibilities of forecasting the relative humidity are evaluated. No personalities are mentioned. References follow individual articles.

Card 1/3



AVAILABLE: Library of Congress

SOV/84-59-11-47/66

AUTHORS: Borovikov, A., and Likhachev, R., Engineers

TITLE: Checking Turbine Blades by Ultrasound

PERIODICAL: Grazhdanskaya aviatsiya, 1959, Nr 11, pp 25-26 (USSR)

ABSTRACT: The authors explain the essence of the ultrasound method of inspecting jet engine turbine blades for the presence of initial fatigue cracks not less than 1.25 ÷ 1.5 $mm^2$, and give a general description of the inspection equipment developed by GosNII GVF. The equipment is a feeler, three types of which are shown in Figs 6 and 7. The structural scheme is shown in Fig 3. Plexiglass is used, (polymethyl methacrylate), as the material introducing the ultrasound oscillations into the turbine blade. Plexiglass prisms do not excite multiple refractions of ultrasound waves. An empirical introduction of the ultrasound waves into the blade at 57, 60, 62, 63, and 64° has shown best results at an angle of 62°. The checking was performed as shown in Fig 4. Acoustically direct contact was achieved by preliminary

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Checking Turbine Blades by Ultrasound SOV/84-59-11-47/66

wetting the feeler's refraction prism with thin machine oil. While developing this inspection equipment, GosNII GVF made use of an UZD-7N defectoscope of TsNIITMaSh, having 0.8 and 2.5 mgc frequencies. A disc of barium titanate, 12 mm in diameter, was used as a piezoconverter. To further develop the ultrasound inspection of turbine blades, it is necessary to create a sensitive, portable unit based on semiconductor instruments and printed circuits, and to provide the engines with inspection windows, through which each turbine stage can be inspected. There are 3 diagrams and 6 sets of photographs.

Card 2/2

BOROVIKOV, A.M.

Some results of observations on icing by the use of an aircraft icing-rate meter. Trudy TSAO no.35:56-61 '60. (MIRA 13:11)
(Cloud physics) (Aeronautics in meteorology)

BOROVIKOV, A.M., kand. fiz.-mat. nauk; KHRGIAN, A.Kh., prof.; SOBOLEV, L.G., otv. red.; YASNOGORODSKAYA, M.M., red.; VLADIMIROV, O.G., tekhn. red.

[Abridged cloud atlas for hydrometeorological observations on ships] Sokrashchennyi atlas oblakov dlia sudovykh gidrometeorologicheskikh nabliudenii. Pod red. L.G.Soboleva. Leningrad, Gidrometeor. izd-vo, 1961. 52 p. (MIRA 15:2)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeorologicheskoy sluzhby.
(Couds)

PHASE I BOOK EXPLOITATION SOV/5852

Borovikov, Aleksandr Moiseyevich, Ivan Ivanovich Gayvoronskiy, Yelizaveta Germanovna Zak, Vadim Vladimirovich Kostarev, Il' ya Pavlovich Mazin, Vladislav Yevgen' yevich Minervin, Aleksandr Khristoforovich Khrgian, and Solomon Moiseyevich Shmeter

Fizika oblakov (Cloud Physics) Leningrad, Gidrometeoizdat, 1961. 458 p. 5000 copies printed.

Ed. (Title page): A. Kh. Khrgian; Ed. : V. S. Protopopov; Tech. Ed. : M. I. Braynina and O. G. Vladimirov.

PURPOSE: This book is intended for meteorologists and for specialists in forecasting service and aviation.

COVERAGE: The book describes modern methods of studying the development, structure and origin of clouds. Special attention has been given to the forma-

Card [redacted]0

tion of microscopic elements in clouds. The macroscopic properties of clouds are also studied in detail. Their position in space, motion, as well as their connection with thermodynamic structure of the atmosphere, general circulation, cyclonic activity, etc. are investigated. Flying in clouds is briefly discussed. One chapter deals with cloud modification and seeding. The book is based on Soviet and non-Soviet sources. Ch. I was written by Ye. G. Zak and I. P. Mazin; Ch. II, by A. M. Borovikov, V. Ye. Minervin, A. Kh. Khrgian and S. M. Shmeter; Ch. III, V, and VI, by A. Kh. Khrgian; Ch. IV, by A. Kh. Khrgian and S. M. Shmeter; Ch. VII, by Ye. G. Zak; Ch. VIII, by A. M. Borovikov; Ch. IX, by I. P. Mazin; Ch. X, by I. I. Gayvoronskiy; Ch. XI, by V. V. Kostarev, V. Ye. Minervin and A. Kh. Khrgian. The authors thank L. T. Matveyev and A. M. Baranov. There are 632 references: 274 English, 254 Soviet, 71 German, 30 French, 2 Hungarian and 1 Polish.

PARFENOV, L.M.; SOLOV'YEV, V.A.; BOROVIKOV, A.M.

Tectonic terminology. Geol. i geofiz. no.9:118-123 '61.
(MIRA 14:11)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

(Geology, Structural--Terminology)

42523

3,5100
3,5800

S/789/61/000/036/001/013
E032/E314

AUTHORS: Borovikov, A.M., Mazin, I.P. and Nevzorov, A.N.

TITLE: Some results of measurements of the size-distribution of large particles in clouds

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy. no. 36. Moscow, 1961. Voprosy fiziki radiolokatsii oblakov, 3 - 13

TEXT: This paper reports an experimental study of the concentration and dimensions of large particles (radius > 75 μ) in various types of cloud. The experiments were carried out with a specially designed apparatus mounted on board an aircraft. The device was developed at TsAO by A.N. Nevzorov. Drops entering the device pass through a standard light beam, which is continuously monitored by a photomultiplier. As soon as the particle enters the beam the photomultiplier current drops and is transformed into a pulse which can be recorded either on a moving chart or with the aid of electronic circuits. The geometry of the device is such that the air stream flowing through it is affected as little as possible by the instrument itself. The light beam passes through about 100 litres

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Some results of ....

of air per second at a flight velocity of 50 - 60 m/s. Thus, the cloud-volume scan per minute is of the order of a few cubic metres. The method, therefore, has clear advantages over the foil method described by Brown (Journ. of Met., v. 15, 1958). The first experiments were carried out in October/November, 1959, over an experimental meteorological polygon near Dnepropetrovsk. The device was modernized in April, 1960, to include electronic counting devices so that particles in four adjustable size ranges could be recorded. The modernized device was used in April/May, 1960, near Vil'nyus, to determine the drop-size distribution. Altogether 446 determinations were made. Detailed results are reproduced in the form of numerical tables. It was found, in most cases, that the relation between the number of particles per unit radius range was an exponential function of the radius. It was discovered that the presence of large particles in clouds was the rule rather than the exception. In a number of cases, it was possible to determine the height at which large particles were no longer present and to compare this with the position of the lower boundaries of clouds. Such comparisons showed that large particles were found up to 100 - 200 m below the lower boundary of Ac and Cu clouds and 1 - 2 km

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E032/E314

Some results of ....

or more below As and Ns clouds. In fact, they appeared to be the precipitation particles reaching the Earth. In isolated cases, large particles were recorded even above clouds.
There are 1 figure and 7 tables.

Card 3/3

S/789/61/000/036/002/013
E032/E314

3.5800

AUTHORS: Borovikov, A.M., Kostarev, V.V., Mazin, I.P. and ~~Chernikov, A.A.~~

TITLE: Relation between the magnitude of the radar signal reflected from a cloud and the cloud parameters

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy. no. 36. Moscow, 1961. Voprosy fiziki radiolokatsii oblakov, 14 - 30

TEXT: Atlas (Journ. of Met. v.11, no.4, 1954) and Donaldson (Journ. of Met., v.12, no. 3, 1955) have discussed the possibility of the measurement of the liquid-water content of clouds by radar methods and have concluded that this was possible. In view of the considerable scientific and practical importance of the problem, the authors undertook a theoretical and experimental study of this subject and the results are now reported. Theoretical analysis showed that the strength of the reflected radar signal provided information about the quantity

$$Z = \int_0^\infty n(r)\, r^6\, dr \qquad (4) .$$

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S/789/61/000/036/002/013
E032/E314

Relation between ....

Since the liquid-water content is given by

$$w = \frac{4}{3}\pi \int_0^\infty n(r)\, r^3\, dr \qquad (5),$$

it follows that the relation between Z and w depends on the form of the particle-size distribution. Detailed examination of known drop-size distributions shows that w can be determined provided there are not too many large particles. The experimental part was carried out from the aerological radar station developed and built at TsAO and operating at $\lambda = 3.2$ cm. The aim was to obtain radar data which could be compared directly with aeroplane observations. A description of the apparatus is said to be available elsewhere [Abstracter's note: reference not given. A detailed numerical table is reproduced showing a comparison between radar observations and observations carried out from an aeroplane with the aid of the drop-size meter developed by Nevzorov at TsAO (c.f.* pp. 3-13 of this issue). General conclusions: strong signals ($Z > 10^{-15}$ cm$^3$) are due to large particles

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so that practically all the characteristics obtained with the radar equipment refer only to the large-particle "cloud". Since the presence of even a small number of such particles in clouds has an appreciable effect on the reflected signal, and since the strength of the signal is very sensitive to the size spectrum, it is considered that the relation between Z and w cannot, in practice, be separated from the general background due to other factors, i.e. w cannot be determined from Z alone. Thus, the "optimistic conclusions" of Atlas and Donaldson are considered unfounded. It is noted, however, that this does not mean that radar methods cannot be used in cloud studies. On the contrary, because the radar signal provides information about the presence and behaviour of large particles in clouds, this opens up new possibilities in the experimental study of clouds and precipitation.
There are 2 figures and 4 tables.

Card 3/3

S/789/61/000/036/004/013
E032/E514

3,5800

AUTHORS: Borovikov, A.M. and Kostarev, V.V.

TITLE: On the accuracy of measurements of the altitude of clouds by the radar method

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy. no. 36. Moscow, 1961. Voprosy fiziki radiolokatsii oblakov, 37 - 42

TEXT: A special radar station, designed for meteorological purposes, was developed in 1956-1958 at the radar laboratory at TsAO. The radar installation was used in the autumn of 1959 and spring of 1960 to carry out a comparison between radar and direct aircraft measurements near Vil'nyus and the results obtained are reported in this paper. It was found that the radar equipment was capable of determining the altitude of the upper boundaries of clouds to within ± 100 m in the range 0.8 - 7 km. It was not possible to determine the lower boundaries of clouds by this method because of masking by large particles. However, some qualitative information about the multilayer structure of clouds can apparently be obtained with this equipment. There are 3 figures.

Card 1/1

BOROVIKOV, A.M.; KOSTAREV, V.V.; MAZIN, I.P.

Use of radar for studying the structure of clouds. Dokl. AN SSSR 140 no.3:575-578 S '61. (MIRA 14:9)

1. TSentral'naya aerologicheskaya observatoriya. Predstavleno akademikom Ye.K.Fedorovym.

(Radar meteorology)

BOROVIKOV, A.M.; GOLYSHEV, G.I.; KOKIN, G.A.

Some structural characteristics of the atmosphere in the Southern Hemisphere. Meteor. i gidrol. no.3:14-20 Mr '62. (MIRA 15:3)
(Atmosphere)

BOROVIKOV, A.M.

Fizika Oblakov. Leningrad , GIMIZ, 1961.
458 Pages, illus., Diagrs., tables.
Bibliography: p. 435-457.

L 14467-66 FSS-2/EWT(1)/FCC GW/WR

ACC NR: AR5012916 UR/0169/65/000/003/B093/B094
551.509.6

32
03

SOURCE: Ref. zh. Geofizika, Abs. 3B564

AUTHOR: Borovikov, A.M.; Kostarev, V.V.; Shupyatskiy, A.B.

TITLE: Results of radar observations of the evolution of heavy cumulous and cumulo-nimbus clouds under the effect of artificial influence

CITED SOURCE: Tr. Vses. soveshchaniya po aktivn. vozdeystviyam na grad. Protivessy. Tbilisi, 1964, 217-232

TOPIC TAGS: atmospheric cloud, cloud physics, meteorologic radar

TRANSLATION: On the basis of analyses of radar observations conducted in 1961-1962 by the Samsarskaya expedition on the evolution of cumulo-nimbus clouds, some preliminary radar signs were established regarding the hail-carrying capacity of clouds. In order to discover these signs, certain radar characteristics applicable to clouds were used, namely: the range of the maximal radar reflection and its position in the cloud; the stratum of an increased reflection zone and its position in the cloud; the altitudes of these zones and their characteristic temperatures. One should expect a precipitation of hail when: 1) the range of radar reflection is $>10^{-9}$ sm$^{3}$; 2) the zone of increased reflection is in a minimal 3-3.5 km strata and is either sym-

Card 1/2

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ACC NR: AR5012916

metrically distributed or located in the upper part of the cloud; 3) the entire reflection zone, or most of it, is located in an area of negative temperatures; 4) the altitude of the upper reflection zone is more than 9 km, and its thickness 6 km. The fact is stressed that deductions regarding the hail-carrying capacity of clouds may be made only in the presence of all the above-indicated signs, and that the presence of only one or some of these symptoms does not give a sufficient basis for such deductions. Radar tracking of the effects of artificial influences on the hail-carrying clouds made it possible to establish a series of radar criteria for evaluating the effectiveness of the influence. Such criteria are: the disappearance of, or decrease in the cloud area in a horizontal location profile; variations in the vertical distribution of radar reflections typical for hail-carrying clouds; signs, indicated by radar, of a phase reorganization in the clouds; variations in the character of the contours of the radar pictures of the reflection zone. The criteria obtained were applied by the Samsarskaya expedition for evaluating data gathered from several cases of cumulo-pluvial clouds affected by artificial influence. Practical examples are given. A. Borovikov.

SUB CODE: 04

Card 2/2

L 48590-65 EWT(1)/FCC GW

ACCESSION NR: AP5010226 UR/0352/65/001/003/0291/0301

13
12
B

AUTHORS: Borovikov, A. M.; Mazin, I. P.; Nevzorov, A. N.

TITLE: Some distributional patterns of large particles in clouds of various forms

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 3, 1965, 291-301

TOPIC TAGS: cloud, rainfall, ice crystal / LI 2 airplane, IL 14 airplane

ABSTRACT: The authors have studied the size range and concentration of large particles in clouds of different types. The data were obtained from aerial flights of "flying laboratories" in LI-2 or IL-14 planes. The concentration and size distribution were measured by a device described by A. N. Nevzorov (Pribor dlya izmereniya razmerov i kontsentratsii krupnykh chastits v oblakakh i osadkakh s samoleta. Tr. Vsesoyuzn. nauchn. meteorol. soveshchaniya, 9, Gidrometeoizdat, 1963). Electrical impulses were obtained from light pulses caused by variation in light flux as particles cut across the field. All types of clouds were examined, and the results were tabulated. Particle sizes are very small in stratus and stratocumulus (average of 37 $\mu$), are appreciably

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ACCESSION NR: AP5010226

greater in altocumulus (101 $\mu$) and altostratus (121 $\mu$) clouds, and greatest in nimbostratus clouds, in which some particles exceed 300 $\mu$. The average size for this type cloud is 245 $\mu$, but some particles may be only 89 $\mu$. This variation in size is due to the thickness of the zone of freezing temperatures within the clouds. The thickness of stratocumulus clouds may be about the same as that of altocumulus clouds, but the latter are colder. The authors found that particle distribution in ice-crystal clouds follows an exponential law, but in water clouds the distribution conforms to a power law. There are grounds for stating that the coagulating mechanism of enlarging particles leads to power-law size distribution and that the condensation mechanism leads to exponential distribution. Orig. art. has: 2 figures, 3 tables, and 7 formulas.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 21Feb64 ENCL: 00 SUB CODE: ES

NO REF SOV: 004 OTHER: 005

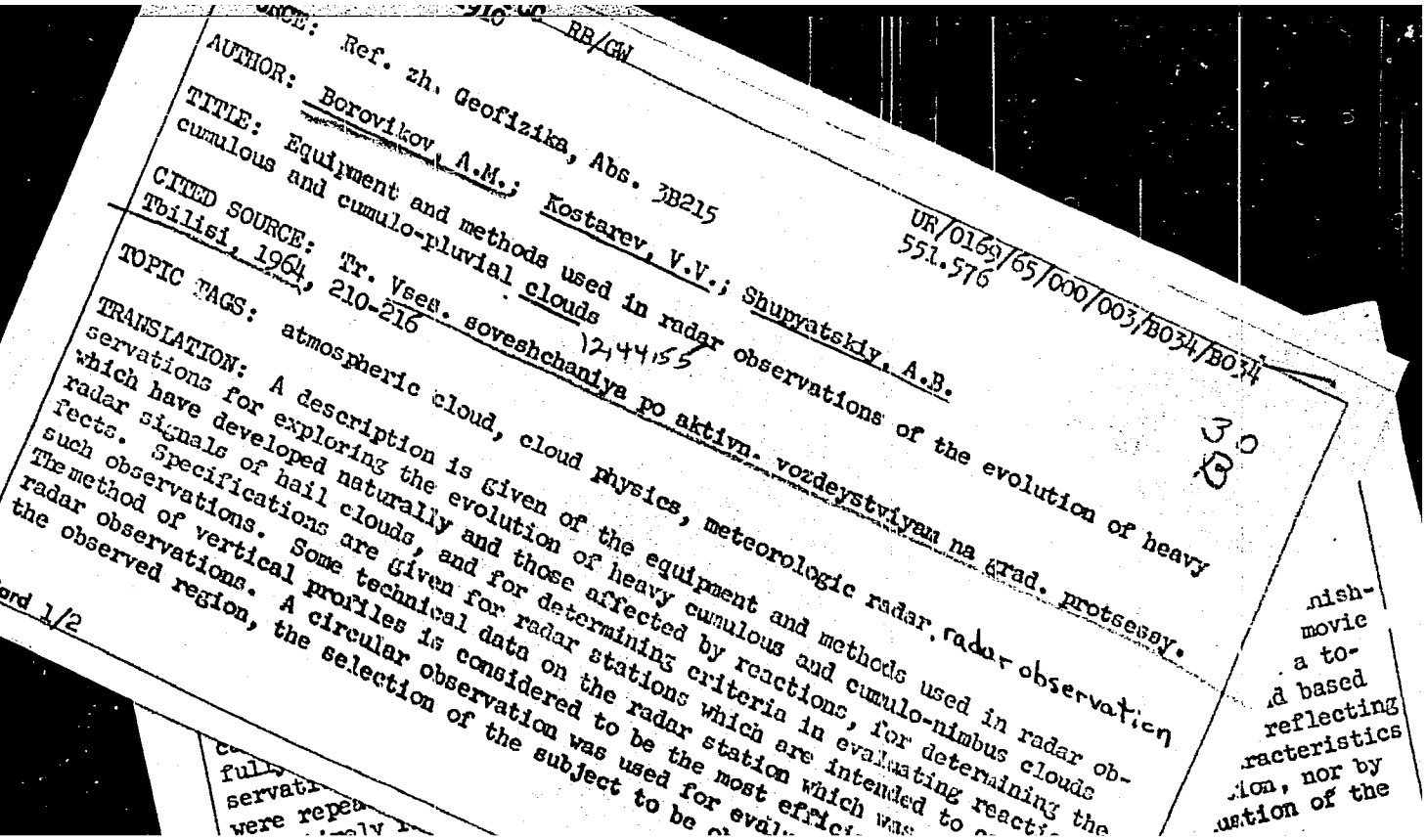
Card 2/2

BOROVIKOV, A.M.; DEMIDOVA, Ye.I.

Phase state of clouds of various forms. Trudy TSAO no.64:28-35 '65.
(MIRA 18:7)

BOROVIKOV, A.M.; KOSTAREV, V.V.; SHUPYATSKIY, A.B.

Some results of radar observations of the evolution of cumulus congestus clouds and results of modification. Trudy TsAO no.57:24-40 '64. (MIRA 19:1)



SOURCE: Ref. zh. Geofizika, Abs. 3B215

AUTHOR: Borovikov, A.M.; Kostarev, V.V.; Shupyatskiy, A.B.

TITLE: Equipment and methods used in radar observations of the evolution of heavy cumulous and cumulo-pluvial clouds

CITED SOURCE: Tr. Vses. soveshchaniya po aktivn. vozdeystviyu na grad. protsessy. Tbilisi, 1964, 210-216

TOPIC TAGS: atmospheric cloud, cloud physics, meteorologic radar, radar observation

TRANSLATION: A description is given of the equipment and methods used in radar observations for exploring the evolution of heavy cumulous and cumulo-nimbus clouds which have developed naturally and those affected by reactions, for determining radar signals of hail clouds, and for determining criteria in evaluating reactions which are intended to affect. Specifications are given for radar stations which are intended to such observations. Some technical data on the radar station which was The method of vertical profiles is considered to be the most efficient radar observations. A circular observation was used for evaluation of the observed region, the selection of the subject to be

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L 26761-66 EWT(d)/EWT(l)/EWT(m)/EPF(n)-2 IJP(c) JD/WW

ACC NR: AP6014021 SOURCE CODE: UR/0056/66/050/004/0844/0852

54
B

AUTHOR: Peshkov, V. P.; Borovikov, A. P.

ORG: Institute of Physical Problems, AN SSSR (Institut fizicheskikh problem AN SSSR)

TITLE: Measuring the Lambda transition temperature and the maximum density of liquid $He^4$

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 4, 1966, 844-852

TOPIC TAGS: vapor pressure, temperature measurement, heat transfer, helium, liquid helium

ABSTRACT: The vapor pressure of $He^4$ at the $\lambda$ point and the temperature difference between the $\lambda$ point ($T_\lambda$) and the temperature of the maximum density of liquid helium ($T_{max\ \rho}$) were measured with high accuracy. The position of the $\lambda$ point was determined on the basis of the specific heat curve and the sharp change in heat transfer. The position of the maximum density was determined on the basis of the change of the nature of convection. The vapor pressure at the $\lambda$ point was found to be $P_\lambda = 37.80 \pm 0.03$ mm Hg (0C, G = 980.665 cm/sec$^2$),

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ACC NR: AP6014021

$T_{\lambda}(58) = 2.172_{0} + 0.0003K$. The temperature difference is $T_{max}\rho - T_{\lambda} = 0.0065 \pm 0.0005^{o}$. Orig. art. has: 7 figures and 2 formulas. [Based on author's abstract] [NT]

SUB CODE: 20/ SUBM DATE: 06Jul65/ ORIG REF: 002/ OTH REF: 009

Card 2/2 FW

BOROVIKOV, A.S.

Improvement of the method of luminescent defectoscopy. Zav. lab. 29 no.10:1200-1202 '63. (MIRA 16:12)

L 34007-65 EWT(d)/EWT(l)/EPA(s)-2/EWT(m)/EWP(e)/EPF(n)-2/EWP(c)/EWP(v)/EPA(w)-2/T/EWP(k)/EWP(b)/EWP(l) Pf-4/Pt-10/Pu-4/Pab-10 IJP(c) WH

ACCESSION NR: AP5007675 S/0032/65/031/003/0325/0327

AUTHORS: Karyakin, A. V.; Borovikov, A. S.; D'yakov, L. A.

TITLE: Luminescent defectoscopy of porous materials

SOURCE: Zavodskaya laboratoriya, v. 31, no. 3, 1965, 325-327

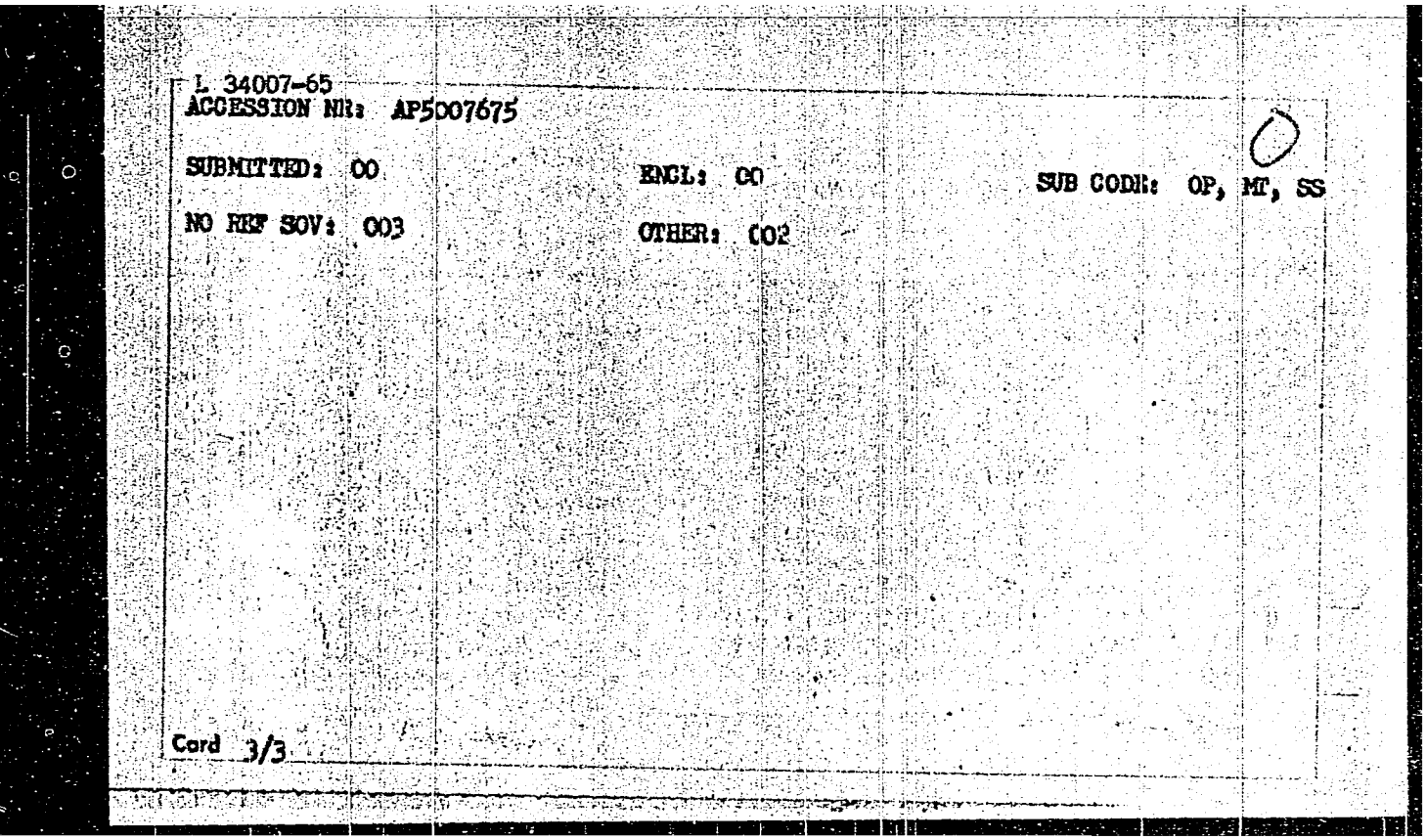
TOPIC TAGS: defectoscope, luminescence method, porous material/ OP 7 emulsifier, OP 10 emulsifier, UFS 6 light filter, DRSh 250 lamp

ABSTRACT: Luminescent and color defectoscopy has not been widely successful in the past for testing nonmetallic porous wares that are not amenable to electroinductive or ultrasonic testing. The porosity has generally produced a background that obscures surface defects. The authors tested a variety of materials and found that the luminescent method may be used if the type of porosity of the material is known. The type of porosity rather than size of pores is the determinative factor. Material with pores that do not interconnect (fired ceramics and glass) and material that does not become impregnated when soaked in liquid must be tested by the luminescent method developed for metals. Material with chiefly interconnected pores or fractures (many types of unfired ceramics and concrete) can be successfully tested by particle filtering. Best results are obtained by

Card 1/3

using particles that luminesce in either ultraviolet or daylight. The background is lowest with low surface density of pores. This value is near zero for metals, glasses, and glazed ceramics. For materials with interconnecting pores or fractures, it is necessary to determine the effective permeability of any liquid relative to the capillaries of the material. For concrete, insoluble organic luminophores, luminescent in both daylight and ultraviolet, suspended in water are satisfactory. The particles must be 5-10 times the average pore size of the test material. In this case the particles are generally 35-50 microns across. Generally 0.5-1 g of phosphorogen (such as enamel pigment) and 0.05-0.5 g of surface-active substance (such as OP-7 or OP-10 emulsifier) are suspended in one liter of water. The phosphorogen is ground in a ball mill (ceramic balls) and then mixed with a small amount of water and surface-active material to form a paste. This paste is then diluted to the required proportion. The suspension is applied to the test surface with an atomizer or a brush, or the material is dipped briefly in the suspension. After 30-60 seconds the surface is examined in ultraviolet light. Orig. art. has: 2 figures.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo (Institute of Geochemistry and Analytical Chemistry)



L 34007-65
ACCESSION NR: AP5007675

SUBMITTED: 00 ENCL: 00 SUB CODE: OP, MT, SS

NO REF SOV: 003 OTHER: 002

Card 3/3

L 28467-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWP(v)/EWP(j)/T/EWP(t)/ETI/EWP(k)/EWP(b)/
ACC NR: AP6010274 ETC(m)-6 IJP(c) JD/RM SOURCE CODE: UR/0381/66/000/001/0049/0062

AUTHOR: Borovikov, A. S.

ORG: State Scientific Research Institute of Civil Aviation (Gos.NII grazhdanskoy aviatsii)

TITLE: Development of materials for dye-penetrant and luminescence flaw detection

SOURCE: Defektoskopiya, no. 1, 1966, 49-62

TOPIC TAGS: luminophor, flaw detection, dye chemical, luminescent material, crack propagation / LZh luminophor,

ABSTRACT: The principal trends in the development of capillary (luminescence and dye-penetrant) methods of detection of surface cracks on nonferromagnetic heat-resistant and high-temperature nickel, austenitic, titanium and other work parts are outlined. As part of a survey of this field, the author evaluates the quality of the special luminescent tracer fluids of the LZh type based on the yellow-green lumogen no. 2 synthesized at the All-Union Scientific Research Institute of Monocrystals. Also described is a combination luminescence and dye-penetrant method, developed by the author on the basis of specialized sets of materials having the generic name "Aero." This combination method employs a "quenched" -- as regards con-

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Card 1/2

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ACC NR: AP6010274

centration -- luminescent tracer solution of an alcohol- and watersoluble red fluoro--dye in a mixture with alcohol and a non-ionogenic surface-active substance; the substance taken as the developing varnish is a pigmented coating forming the solid solution of the fluoro-dye, which is luminescent in red, ultraviolet and daytime light and is not fluorescent in ultraviolet light. The structure of the luminescent-dye-penetrant materials forming at the site of contact between the tracer fluid and the developer, i.e. at the mouth of the surface crack thus detected resembles the structure of the daytime-fluorescent paints used for better visibility on road markers, vehicles, etc. and is, so to speak, a photographic negative of these dyes. Thus definite advances have been made in dye-penetrant and, particularly, luminescence flaw detection. But much research and development work on more effective developing materials still remains to be done, particularly in connection with the development of new methods of their deposition (the aerosol method, dipping, etc.), and all this work must be based on more solid theoretical foundations. Another important problem of the science of flaw detection is the development and mass production of more powerful (with illumination of more than 1000 "black" lux) ultraviolet luminaires. Orig. art. has: 14 figures, 2 tables.

SUB CODE: 11, 13, 20/ SUBM DATE: 19Oct65/ ORIG REF: 009/ OTH REF: 005

Card 2/2 LC

L 46714-66 EWT(d)/EWT(l)/EWT(m)/EWP(c)/EWP(v)/T/EWP(k)/EWP(l) IJP(c) JD

ACC NR: AP6023647 SOURCE CODE: UR/0381/66/000/002/0079/0091

62

B

AUTHOR: Borovikov, A. S.

ORG: GosNII Civil Aviation (GosNII grazhdanskoy aviatsii)

TITLE: The use of capillary defectoscopy in materials testing

SOURCE: Defektoskopiya, no. 2, 1966, 79-91

TOPIC TAGS: flaw detection, UV detector, optical mechanical measurement, photographic recording, photoluminescence

ABSTRACT: Flaw detection methods based on capillary defectoscopy are described. Among these are the simulation of discontinuous cracks, a light exposure arrangement, measurement of exposure, meniscus testing, measuring the exposure to ultraviolet light, simulating surface conditions, a concentration test and photography under ultraviolet light. The simulation of discontinuous type cracks was done by bolting two split rings under a torque ranging from 4 to 40 kg·m and calibrating micrometer readings with natural cracks; after soaking in a luminescent solution, the samples were compared to the simulated crack reading. An apparatus was also developed for simulating long wedge-type cracks. Fatigue tests done on the nickel alloys EI-617 and EI-437B showed a sharp increase in relative crack size ($\delta_N/\delta_0$) as a function of the number of cycles

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Card 1/2

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(N). An exposure arrangement is described in which specimens with cracks could be exposed to sprayed luminescent liquids. The specimens were analyzed with a polarizing instrument. Meniscus testing is explained. After exposure to indicator liquids, the specimens were observed to form meniscuses at cracked surfaces. From radii measurements the crack thicknesses were deduced. The use of ultraviolet light in flaw detection is also described. An arrangement is shown in which recording of ultraviolet spectra was done either by a galvonometer or by photography under ultraviolet light; for the latter, details of spectral characteristics and photograph development were given. In conjunction with the luminescence-light method, a concentration test was developed for indicating flaw intensity. A graded indicator scale was obtained by varying the number of drops of indicator fluid--1 to 10, 20, 30, 60 and 100--in a graduated display chart. By comparing the actual specimen with the charge, a quantitative estimate was made of the flaw intensity. Orig. art. has: 15 figures.

SUB CODE: 14,11/ SUBM DATE: 01Dec65/ ORIG REF: 012/ OTH REF: 004

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S/056/60/039/006/008/063
B006/B056

AUTHORS: Rusinov, L. I. (Deceased), Borovikov, A. V., Gvozdev, V. S., Porsev, G. D., Sakharov, S. L., Khazov, Yu. L.

TITLE: Investigation of the Decay Scheme of $Dy^{166}$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1529-1533

TEXT: Contradictions between theory and experiments on the subject of $Ho^{166}$ gave rise to investigations of the spectrum of internal conversion electrons and of the spectrum of gamma rays arising with the β-decay of $Dy^{166}$ (going over into $Ho^{166}$). A report is given here on these investigations, which have led to a determination of the spin characteristics of the $Ho^{166}$-nucleus level. $Dy^{166}$ ($T_{1/2}$ = 80.2 hours) was obtained from $Dy^{164}$ by double neutron capture. The target enriched with $Dy^{164}$ to 86.5% was exposed to a neutron irradiation for 6 - 7 days, and 36 hours after the end of this

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irradiation, the spectrum of the internal conversion electrons was recorded. Then, the $Dy^{165}$-content ($T_{1/2}$ = 2.4 hours) is negligible. The conversion electron spectrum of the $Ho^{166}$-nucleus, formed in the β-decay of the $Dy^{166}$ is shown in Fig. 5. Besides the transitions with 28, 54.2, and 82.5 kev of the $Ho^{166}$ nucleus, this spectrum also shows the 81-kev transition of the $Er^{166}$-nucleus, which is produced in the β-decay of $Ho^{166}$. Conversion electrons, which correspond to transitions with energies of more than 82.5 kev in the $Ho^{166}$-nucleus, were not discovered. Their intensity would have to be less than 0.5% of the intensity of the K-line of the transition with 82.5 kev. The relative conversion coefficients determined from this spectrum are given in Table 1. For a comparison, also the conversion coefficients given by L. A. Sliv and I. M. Band are mentioned. Also the spectra of the γ-radiation and the γγ-coincidences were investigated. It was found that between the gamma quanta with 28 and 54.2 kev coincidence exists, but not between the latter and the 82.5-kev quanta. From the conversion coefficient ratios the types of the transitions were determined:

Investigation of the Decay Scheme of $Dy^{166}$ S/056/60/039/006/008/063
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the gamma transitions with 28 and 82.5 kev were found to be pure M1 transitions, the 54.2-kev transition a pure E2 transition. The intensities shown in Fig. 1 have an accuracy of up to 2-3%. It was further found that $(55\pm2)\%$ of all $Dy^{166}$ decays lead to the formation of $Ho^{166}$ in the excited state with 82.5 kev, $\sim 43\%$ to $Ho^{166}$ in the ground state. Fig. 6 makes a suggestion for schemes of the lower levels of the $Ho^{166}$-nucleus; the first variant is the most probable. The authors thank D. A. Varshalovich for discussions. There are 6 figures, 2 tables, and 6 references: 2 Soviet, 1 US, 1 Dutch, and 1 Danish.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR
(Leningrad Institute of Physics and Technology of the Academy of Sciences USSR)

SUBMITTED: June 29, 1960

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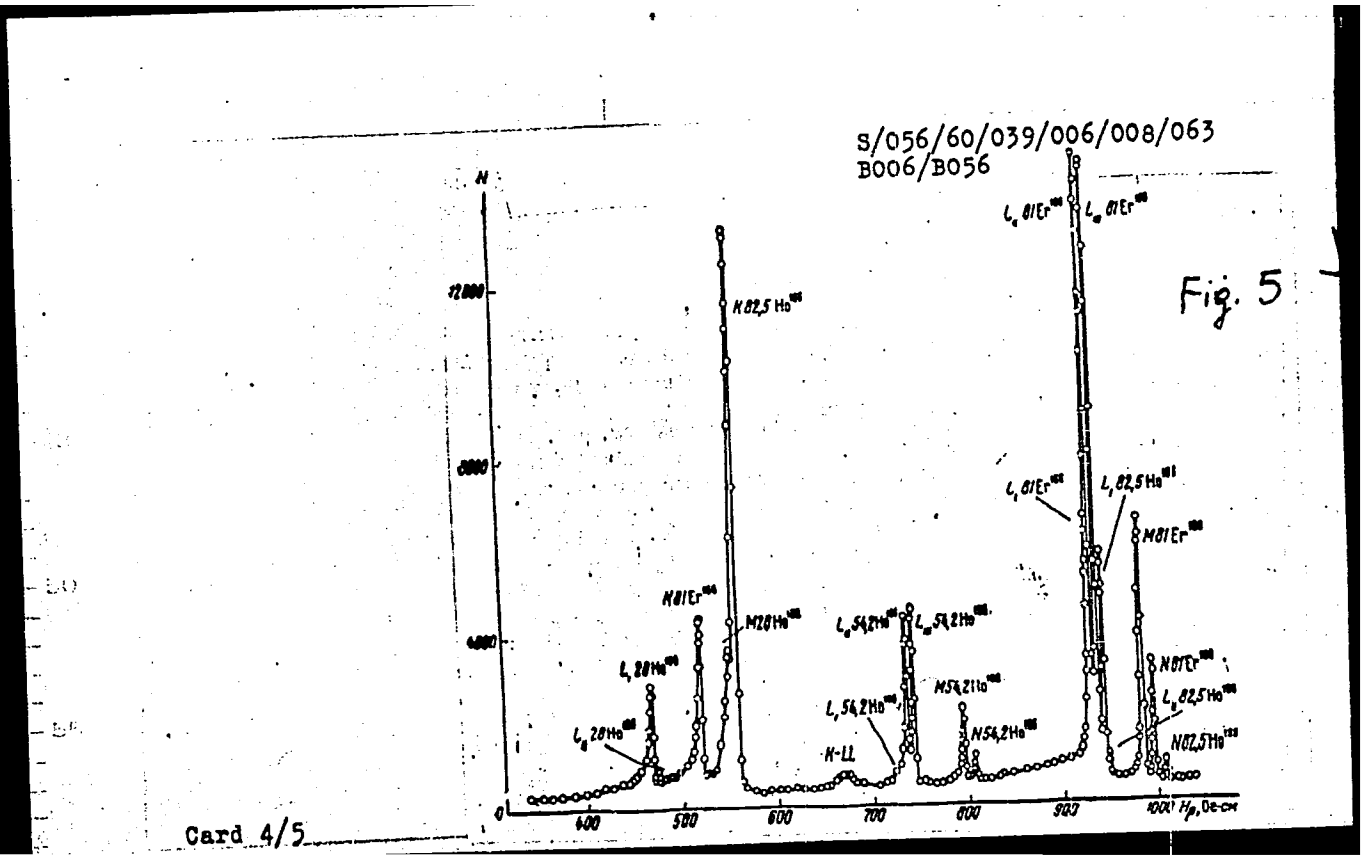


Fig. 5

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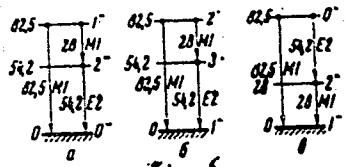



Fig. 6.

Text to Table 1:
1) Relative conversion coefficients. 2) Experimental. 3) Calculated for the transition ... 4) Intensity of the transition.

Таблица 1

| $E_\gamma$, keV | Относительные коэффициенты конверсии 1 | | | | | | | Интенсивность перехода 4 |
|---|---|---|---|---|---|---|---|---|
| | 2 Экспериментальные | Вычисленные для перехода 3 | | | | | | |
| | | E1 | E2 | E3 | M1 | M2 | M3 | |
| | | $\alpha_{L_I}/\alpha_{L_{II}}$ | | | | | | |
| 28 | 10,5 ± 0,3 | 1,45 | 0,01 | 0,014 | 10,7 | 14,4 | 13,0 | 0,23 ± 0,01 |
| | | $\alpha_{L_I}+\alpha_{L_{II}}/\alpha_{L_{III}}$ | | | | | | |
| 54,2 | 0,85 ± 0,03 | 2,7 | 0,89 | 0,94 | 76 | 3,22 | 0,53 | 0,23 ± 0,01 |
| | | $\alpha_{L_I}/\alpha_{L_{II}}$ | | | | | | |
| 82,5 | 11,0 ± 0,4 | 3,55 | 0,1 | 0,017 | 11,4 | 8,8 | 6,3 | 1 |
| | | $\alpha_K/\alpha_L$ | | | | | | |
| | 7,6 ± 0,2 | 6,1 | 0,5 | 0,04 | 6,61 | 3,16 | 0,7 | 1,05 ± 0,01 |
| 81Er | | | | | | | | |

Card 5/5

BOROVIKOV, A.V.; GVOZDEV, V.S.; PORSEV, G.D.

Multichannel unit for measuring $\beta$-$\gamma$ and $\beta$ - e angular correlation. Prib. i tekh.eksp. 6 no.4:33-34 Jl-Ag '61. (MIRA 14:9)

1. Fiziko-tekhnicheskiy institut AN SSSR.
(Electronic measurements)

VETUKHNOVSKIY, Z.B., inzh.; VLADYCHINA, Ye.N., inzh.; GUBENSKIY, V.A., inzh.; DORRENDORF, V.I., inzh.; SEREBRYANIKOV, S.N., inzh.; SOLIYENKO, V.O., inzh.; TIMOKHOV, Ye.P., inzh.; TYURIN, V.F., vedushchiy inzh.; BOROVIKOV, B.A., red.; KUPTSOV, A.P., tekhn.red.

[Painting in a high voltage electric field] Okraska v elektricheskom pole vysokogo napriazheniia. Moskva, TSentral'noe biuro tekhn.informatsii, 1958. 63 p. (MIRA 12:7)

1. Russia (1917- R.S.F.S.R.) Moskovskiy gorodskoy ekonomicheskiy administrativnyy rayon. Sovet narodnogo khozyaystva. 2. TSentral'naya nauchno-issledovatel'skaya laboratoriya Vsesoyuznoy proizvodstvennoy kontory "Lakokraspokrytiye" (for Vetukhnovskiy, Vladychina, Gubenskiy, Dorrendorf, Serebryanikov, Soliyenko, Timokhov).
(Spray painting)

BOROVIKOV, B.A.

16(0) PHASE I BOOK EXPLOITATION SOV/2960

Matematicheskiye issledovaniya, vyp. 8

Trudy, t. 8 (Transactions of the Moscow Mathematical Society, Vol 8) Moscow, Fizmatgiz, 1959. 518 p. Errata slip inserted. 2,050 copies printed.

Ed.: A.F. Leont'yev; Tech. Ed.: S.G. Gavrilov; Editorial Board: P.S. Aleksandrov, I.M. Gel'fand, and O.Ye. Golovina.

PURPOSE: This book is intended for mathematicians and theoretical physicists.

COVERAGE: This book contains a collection of articles by leading Soviet mathematicians on problems in pure and applied mathematics. All articles were written in 1957 and 1958. Among the topics discussed are: analytic - operator functions, function spaces, nonstationary plane flow of a viscous non-compressible liquid, root spaces, products of groups representations, ordinary and partial differential equations, 3rd and 4th order linear equations, homogeneous spaces, operational theory of operators, and generalized random processes. References accompany each article.



AVAILABLE: Library of Congress

Card 3/3 AC/mfm 1-12-60

BOROVIKOV, I.M., kand.

Causes of the wear of frame saw swaged teeth. Drev. i pererab. no.8: 288-289 Ag '64

1. Arkhangelsk Forestry Technological Institute.

BOROVIKOV, I.; TOKAREV, I., advokat yuridicheskoy konsul'tatsii (Skopin Ryazanskoy obl.)

Readers relate, advise and criticize. Sov. profsoiuzy 19 no.16: 38-39 Ag '63. (MIRA 16:10)

1. Chlen rabochego komiteta Aleusskogo sovkhoza, Novosibirskaya obl., Ordynskiy rayon.

BOROVIKOV, I.I., instruktor-bukhgalter.

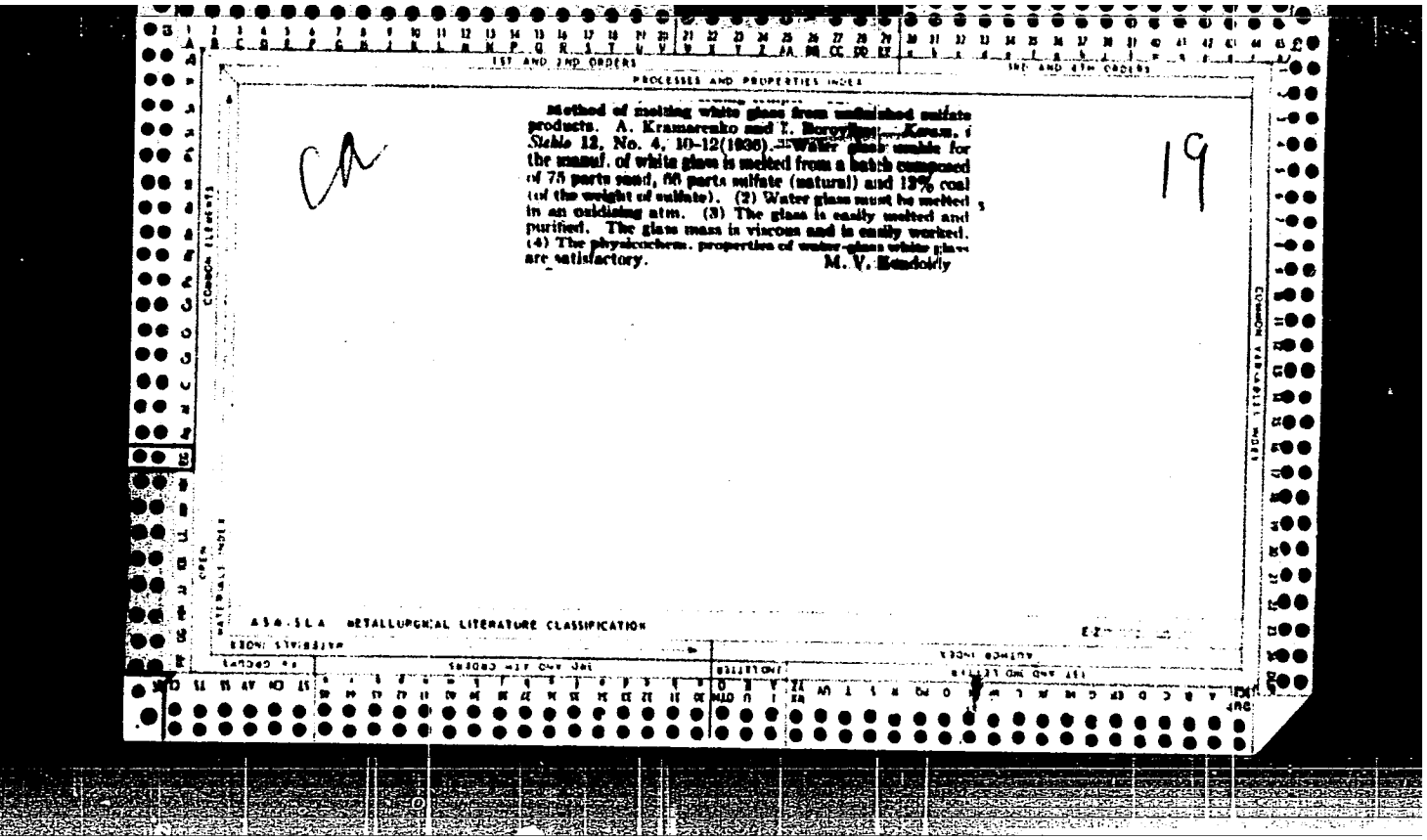
Means of lowering the cost of labor on collective farms. Nauka i pered. op. v sel'khoz. 6 no.11:49 N '56. (MLRA 10:1)

1. Aleusskaya Mashinno-traktornaya stantsiya, Ordynskogo rayona, Novosibirskoy oblasti.
(Farm management)

[redacted], I.L., instruktor-bukhgalter.

Why are rewards given for low-quality production? Nauka i pered. op. v sel'khoz. 7 no.3:67 '57. (MIRA 10:9)

1. Aleusskaya Mashinno-traktornaya stantsiya, Novosibirskoy oblasti.
(Rewards (Prizes, etc.)) (Collective farms)



PROCESSES AND PROPERTIES INDEX

CA

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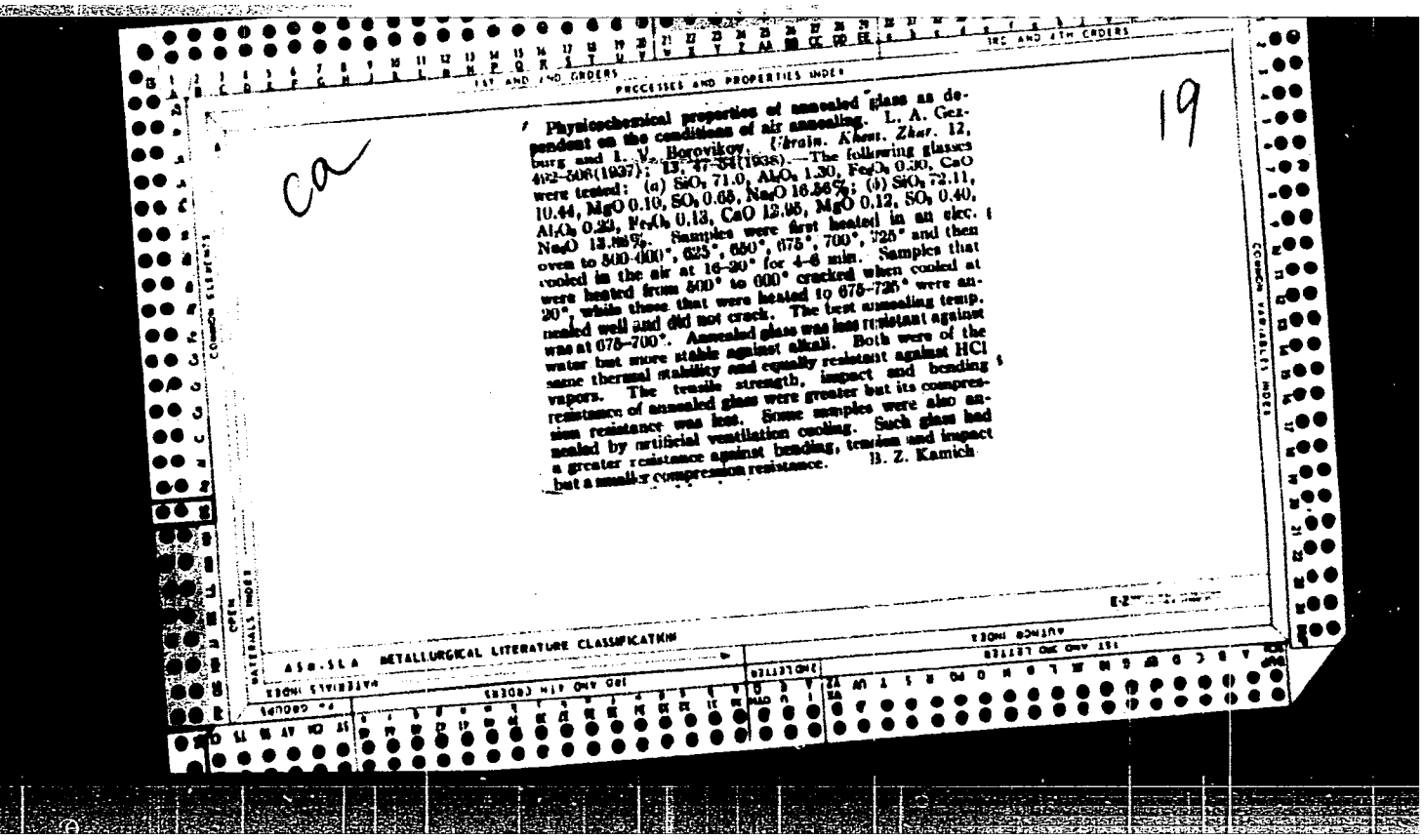
method of melting white glass from undistilled sulfate products. A. Kramarenko and T. Boryssova. Kazan. Stekla 12, No. 4, 10-12(1936).—Water glass usable for the manuf. of white glass is melted from a batch composed of 75 parts sand, 60 parts sulfate (natural) and 12% coal (of the weight of sulfate). (2) Water glass must be melted in an oxidizing atm. (3) The glass is easily melted and purified. The glass mass is viscous and is easily worked. (4) The physicochem. properties of water-glass white glass are satisfactory. M. V. Kendelly

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

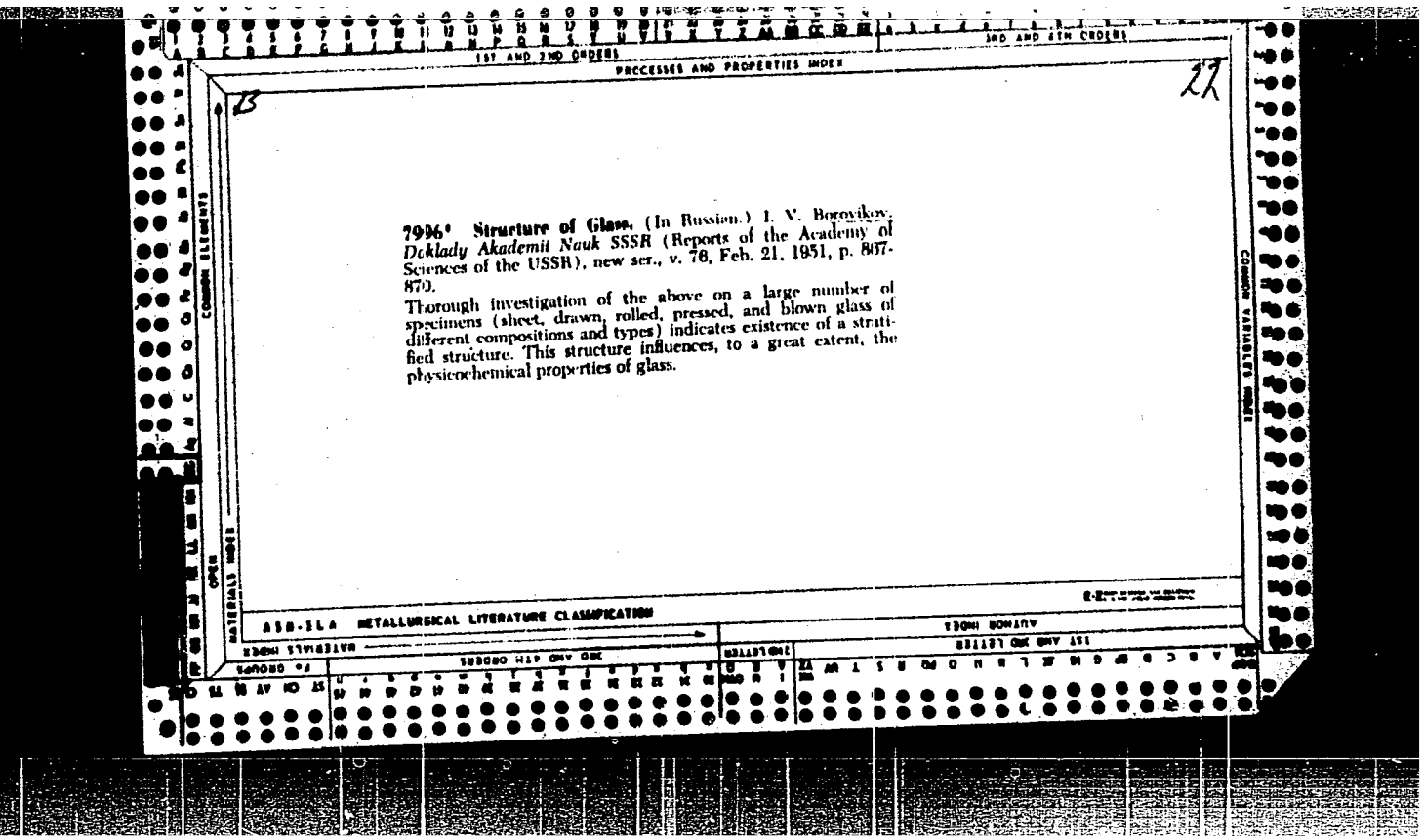


Physicochemical properties of annealed glass as dependent on the conditions of air annealing. L. A. Gerburg and L. V. Borovikov. *Ukrain. Khem. Zhur.* 12, 492–508(1937); 13, 47–54(1938).—The following glasses were tested: (a) $SiO_2$ 71.0, $Al_2O_3$ 1.30, $Fe_2O_3$ 0.30, CaO 10.44, MgO 0.10, $SO_3$ 0.65, $Na_2O$ 16.56%; (b) $SiO_2$ 72.11, $Al_2O_3$ 0.35, $Fe_2O_3$ 0.13, CaO 12.95, MgO 0.12, $SO_3$ 0.40, $Na_2O$ 13.88%. Samples were first heated in an elec. oven to 500–600°, 625°, 650°, 675°, 700°, 725° and then cooled in the air at 16–20° for 4–6 min. Samples that were heated from 500° to 600° cracked when cooled at 20°, while those that were heated to 675–725° were annealed well and did not crack. The best annealing temp. was at 675–700°. Annealed glass was less resistant against water but more stable against alkali. Both were of the same thermal stability and equally resistant against HCl vapors. The tensile strength, impact and bending resistance of annealed glass were greater but its compression resistance was less. Some samples were also annealed by artificial ventilation cooling. Such glass had a greater resistance against bending, tension and impact but a smaller compression resistance. B. Z. Kamich

BCS

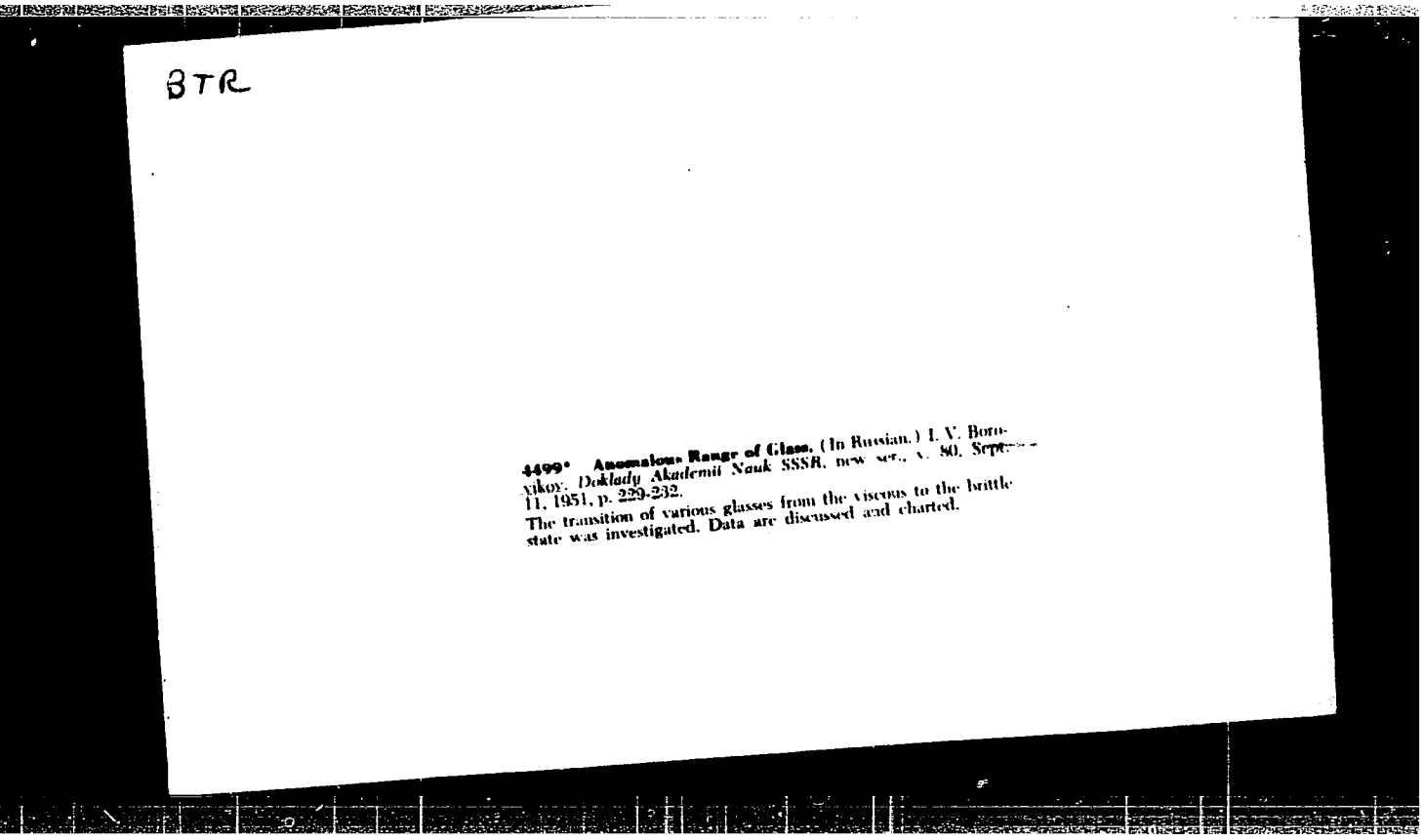
Glass

1242. The structure of wavy sheet glass produced by vertical drawing.—I. V. Ronovgov (*Stek. Keram.*, 8, No. 10, 8, 1951). After discussing various suggestions on the possible causes of waviness, the author describes his own optical investigation, for which he used a specially constructed "profilograph." It is concluded that waviness is due to thermal inhomogeneity of the ribbon caused by contact with floats which are often insufficiently hot. Floats and bridges in the chamber below the machine should be insulated and/or heated electrically. Another measure would be to increase the rate of drawing. (3 figs.)



7996* **Structure of Glass.** (In Russian.) I. V. Borovikov. *Doklady Akademii Nauk SSSR* (Reports of the Academy of Sciences of the USSR), new ser., v. 76, Feb. 21, 1951, p. 867-870.

Thorough investigation of the above on a large number of specimens (sheet, drawn, rolled, pressed, and blown glass of different compositions and types) indicates existence of a stratified structure. This structure influences, to a great extent, the physicochemical properties of glass.



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4499• **Anomalous Range of Glass.** (In Russian.) I. V. Borikov. *Doklady Akademii Nauk SSSR*, new ser., v. 80, Sept. 11, 1951, p. 229-232.

The transition of various glasses from the viscous to the brittle state was investigated. Data are discussed and charted.

BOROVIKOV, I. V.

2
(1 matt

Striae in Fourcault glass. I. V. Borovikov (*Steklo i. Keramika*, 1951, 8, 8; *Glass Ind.*, 1953, 34, 544).—Longitudinal ridges in the sheet are caused by temp. variation along the debiteuse.
I. A. SUGDEN.

Journal of Applied Chemistry
March 1954
Industrial Inorganic Chemistry

BORODIKOV, L.I.

Discovery of a skeleton of Indricotherium Asiaticum Boris in Oligocene sediments in the Turgay Gates. Mat. VSEGEI Ob. ser. no.8:102-105 '48. (Turgay Gates--Rhinoceros, Fossil) (MIRA 11:4)

BOROVIKOV, L.I.

Using the Po-2 airplane for geological investigations of placers in northeastern Kazakhstan; use of airplanes for visual observations in geological mapping on a scale of 1:1,000,000. Mat. VSEGEI Ob. ser. no.8:123-135 '48. (MIRA 11:4)

(Kazakhstan--Aeronautics in geology)

1. BOROVIKOV, L. I.
2. USSR (600)
4. Paleontology - Turgay Lowland
7. Discovery of a skeleton of Indricotherium asiaticum Boris in the Continental deposits of the Oligocene of the Turgay Lowland. Mat. Geol. inst. no. 8, 1948

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

BOROVIKOV, L. I.

"Upper Silurian Deposits and Their Graptolitic Facies in Betpak-Dala," L. I. Borovikov, All-Union Sci Res Geol Inst

"Dok Ak Nauk SSSR" Vol LXXVIII, No 3, pp 561-563

Geol investigations in Betpak-Dala conducted in postwar yr have given much new data which change essentially past ideas on geol structure and history of development of this region (cf. B. I. Borsuk, "Iz Ak Nauk Kazakh SSR, Ser Geol," 11, 33, 1949; and D. I. Yakovley, "The Hungry Steppes of Kazakhstan," publ 1941 by Acad Sci USSR). Of special interest is the appearance of upper Silurian

186T29

USSR/Geophysics - Geology (Contd) 21 May 51

deposits in the eastern part of Betpak-Dala. Submitted 17 Feb 51 by Acad D. V. Nalivkin.

186T29

BOROVIKOV, L.I.

Principle features of stratigraphy, volcanism, and tectonics in the lower Paleozoic of the Dzhezkazgan-Ulutau region in West Central Kazakhstan
Dokl. AN SSSR 85 no. 1, 1952

BOROVIKOV, L. I.

USSR/Geology - Limestones 11 Jul 53

"Nummulitic Limestones from the Region of the Middle Reaches of the Ural River," L. I. Borovikov and S. S. Kuznetsov

DAN SSSR, Vol 91, No 2, pp 363-365

State that nummulitic deposits are found in Crimea, Transcaucasus and Mangyshlak. The layers reach a thickness of 130-170 m, which can be separated into three specific layers of unequal thicknesses. Presented by Acad D. S. Belyankin 13 May 53.

276T47

BOROVIKOV, L.I.

In memory of an outstanding geologist N.G.Kassin. Zap.Vses.min.ob-va 82 no.3:236-240 '53. (MLRA 6:11)

(Kassin, Nikolai Grigor'evich, 1885-1949)

BOROVIKOV, Leonid Ivanovich

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Nizhniy paleozoy Dzhezkazgan--Ulutauskogo rayona zapadncy chasti tsentral'nogo Kaza khstana (Lower paleozoic era of the Dzhezkazgan--Ulutau district of the western part of Central Kazakh) Moskva, Gosgeoltekhizdat, 1955.

250 p. illus., tables (Leningrad. Vsesoyuznyy Geologicheskiy Institut. Novaya Seriya. Tom 6)

BOROVIKOV, L.I.

Stratigraphy of lower Triassic deposits of the Russian Platform. Inform.sbor. VSEGEI no.1:5-12 '55. (MLRA 9:12)

(Russian Platform--Geology, Stratigraphic)

BOROVIKOV, L.I.; BORSUK, B.I., redaktor; KRASNOVA, N.E., redaktor; GUROVA, O.A., tekhnicheskiy redaktor

Lower Paleozoic of the Dzheskazgan-Ulutau region in western Central Kazakhstan. Trudy VSEGEI no.6:3-249 '55. (MLRA 8:11)
(Ulutau region--Geology, Stratigraphic) (Dzheskazgan region--Geology, Stratigraphic)

15-57-8-10386

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 8, p 2-3 (USSR)

AUTHORS: Borovikov, L. I., Borsuk, B. I.

TITLE: In Appreciation of the Life and Scientific Activity of Nikolay Grigor'yevich Kassin (1885-1949) /Zhizn' i nauchnaya deyatel'nost' Nikolaya Grigor'yevicha Kassina (1885-1949)/

PERIODICAL: Materialy Vses. n.-i. geol. in-ta, 1956, Nr 19, pp 5-15

ABSTRACT: The name of N. G. Kassin is associated with the study of the geological structure of Kazakhstan, the utilization of its varied raw natural resources and development of geological science in that region. A ten-verst geological map of the "Turgay Strait" (about 30 000 sq km) was drawn up from the data obtained in his investigations of 1912 to 1913 of the geology and hydrogeology of the steppe and semisteppe regions in the Turgay and Irgiz districts. In 1917, at the request of the Geology Committee, Kassin undertook a geological

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